

Project No: 1-0839  
Version: 03  
Date: 03\_MAR 2026

# Sustainability Management Plan

43-67 River Street, Richmond

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We seek to partner with those who are willing to think strategically to achieve better. We lead, collaborate and support others to deliver impact and build Better Cities and Regions, Better Buildings and Better Businesses.

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VERSION	DATE	ISSUE	PREPARED BY	APPROVED BY
01	06.10.25	Draft SMP	Sujan Dev, Sustainable Building Designer	David Mahony, Head of Better Buildings
02	28.11.25	Draft SMP	Bhargavi Mysore, Sustainable Building Designer	David Mahony, Head of Better Buildings
03	25.02.26	Draft Town Planning	Bhargavi Mysore, Sustainable Building Designer	David Mahony, Head of Better Buildings
04	03.03.26	Town Planning	Bhargavi Mysore, Sustainable Building Designer	David Mahony, Head of Better Buildings



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# Executive Summary

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This Sustainability Management Plan (SMP) outlines the range of initiatives that have been targeted and incorporated into the design, construction and operation of the proposed development at 43-67 River Street, Richmond.

The project has been benchmarked against the Green Star Buildings- Apartments Pathway Version 1 Revision A rating tool and Green Star Homes, prioritising sustainable outcomes, with many features embedded into the design and construction to realise a high-performing project that benefits people, place and planet.

## DESIGN RESPONSE

The design responses detailed in this SMP effectively integrate sustainability into the project to deliver occupant-focused spaces, reductions in carbon emissions associated with electricity, transportation and waste, improved resource efficiency, minimised impact and enhanced natural systems, and healthy indoor environments consistent with climate resilient principles.

The project aims to achieve a high sustainable outcome while meeting and exceeding Council Planning, NCC building code and the client operational requirements.

## GREENSTAR BUILDINGS V1 (CLASS 02)

The following table summarises the points currently targeted under Green Star Buildings- Apartment Pathway Version 1 Revision A for the apartment units of the development, consistent with a 'Australian Excellence' 5-Star rating. It is noted that the targeted initiatives may change as the design progresses, however the overall rating will still be achieved.

CATEGORY	MINIMUM EXPECTATION MET	POINTS TARGET
Responsible	Yes	4
Healthy	Yes	5
Resilient	Yes	2
Positive	Yes	17
Places	Yes	7
People	Yes	2
Nature	Yes	4
Leadership	N/A	1

## GREENSTAR HOMES (CLASS 01)

The table below summarises the mandatory requirements for the town houses to be aligned with under Green Star Homes. It is noted that the targeted initiatives may change as the design progresses, however the overall rating will still be achieved.

CATEGORY	MINIMUM EXPECTATION MET
Healthy	Yes
Resilient	Yes
Positive	Yes

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This Sustainability Management Plan (SMP) has been prepared to communicate the approach taken to embed sustainability into the design, construction and operation of the proposed development at 43-67 River Street, Richmond.

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### PROJECT OVERVIEW

The proposed residential development comprises of 200 units of residential apartments and 13 town houses across the development.

The project site is located at 43-67 River Street, Richmond, positioned on the banks of the Yarra River within Melbourne's inner-east. It is surrounded by a mix of residential, commercial and lifestyle developments and sits within walking distance of the vibrant retail and dining strips along Bridge Road, Swan Street and Victoria Street. The site is approximately 3 km east of the Melbourne CBD, 1.5 km from Richmond Station, and is well-connected to an extensive network of public transport services, bike paths and riverside walking trails.

### DOCUMENTS

This report has been informed by the architectural drawings produced by SJB Architects dated 20/02/2026.

### STATUTORY CONTEXT

#### Yarra City Council

Clause 15.01-2L-01 of the Yarra City Council Planning Scheme aims to ensure that buildings within the municipality achieve high environmental performance standards at the design, construction and operation phases.

The policy provides several performance measures applicable to developments depending on the building typology and size.

#### Voluntary Rating Tools

Green Star Buildings- Apartment Pathway Version 1 Revision A.

The development is registered under the Green Star Buildings v1- Apartment Pathway certification tool under project number GS-16911B, and the Green Star Buildings v1 tool has been

used to benchmark the apartment towers A& B demonstrating compliance with Clause 15.01-2L-01 of the Yarra City Council. The development is targeting a 5-Star Green Star Buildings 'Australian Excellence' rating through the Apartments Pathway v1 and Homes certification, which has been integrated into the design from an early stage.

#### Green Star Homes

The town houses are benchmarked against Green Star Homes demonstrating compliance with Clause 15.01-2L-01

#### National Construction Code

The project shall be designed to exceed the requirements of Section J Energy Efficiency of the National Construction Code (NCC) 2022 Volume 1.

The energy efficiency requirements apply to the conditioned areas of a building to ensure adequate thermal comfort conditions can be maintained within the space. Under Section J the project will be classified as:

- Class 1a: Town houses
- Class 2: Residential Apartments

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Effective management practices can improve the sustainability performance of a project by influencing areas where decision-making is critical. Projects should prioritise the implementation of processes and strategies that support positive sustainability outcomes during design and construction.

The initiatives are aligned with the selected benchmarking rating tool. The applicable pathways depend on the building classification:

- Class 1a — assessed under Green Star Homes credits
- Class 2 — assessed under the Green Star Buildings v1 Apartments pathway.

It is also highlighted where initiatives are common between the class types and benchmarking pathways.

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## PROJECT RESPONSE (CLASS 02)

### Green Star Accredited Professional

HV.H has been engaged as the Sustainability Consultant and GSAP for the project to provide specialist ESD and Green Star advice, guidance and support from feasibility stage through to handover.

### Financial Transparency

The Green Star Financial Transparency disclosure template shall be completed and submitted to the GBCA post Practical Completion.

### Marketing Sustainability Achievements

Cbus Property shall market the building's sustainability achievements of the project.

### Environmental Management System and Environmental Management Plan

The head contractor shall have:

- An Environmental Management System (EMS) certified to AS/NZS ISO 14001 (or equivalent) valid for the duration of the construction activities.
- A project specific Environmental Management Plan (EMP) covering the scope of construction activities to assist with the management of environmental performance conditions and impacts arising from demolition, excavation, and construction.

### Construction and Demolition Waste

At least 90% of construction and demolition waste shall be diverted from landfill.

### Sustainability Training

The head contractor shall provide appropriate sustainability training to 95% of all contractors and subcontractors present on site for at least three days.

### Metering and Monitoring

The building shall have accessible energy and water metering for all common uses, major uses and major sources, connected to a monitoring system capable of capturing and processing the data produced by the meters.

The metering and monitoring equipment shall be designed, installed and commissioned in accordance with NABERS rules, and be capable of automatically raising and issuing alarms when the energy or water use increases beyond certain parameters, as well as generate automatic periodic reports.

### Environmental Performance Targets

The project's environmental performance targets shall be outlined within a Design Intent Report.

### Services and Maintainability Review

A Services and Maintainability Review led by the project team shall be conducted prior to, or during the early stages of Design Development. This shall address:

- Commissionability
- Controllability
- Maintainability
- Operability
- Safety of all systems

### Building Commissioning

All building systems shall be commissioned per a recognised commissioning standard prior to practical completion.

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### Airtightness (Class 01a & 02)

The airtightness strategy for the development shall be documented appropriately during the design stages.

Further, a quantitative test in accordance with AS/NZS ISO 9972:2015 shall be conducted by a practitioner member of ATTMA to determine the air permeability of the building before practical completion.

### Building Systems Tuning

A 12-months tuning process that includes quarterly adjustments and measurements shall be carried out post practical completion.

### Operations and Maintenance Information

Prior to practical completion the head contractor shall provide operations and maintenance information for all building systems to the building owner / representative.

### Building Logbook

A building logbook as per CIBSE TM31: Building Logbook Toolkit shall be provided to the building owner / representative.

### Collection of Waste Streams

The building shall provide labelled, accessible and evenly distributed bins or storage containers to building occupants for at least general waste, recycling, and one additional stream such as organics, e-waste, batteries.

### Dedicated Waste Storage Area

An appropriately sized and accessible waste storage area is provided by the development.

### Sign-off by Waste Specialist and/or Contractor

A waste specialist shall sign-off on the design to confirm it is adequately sized and located for the safe and convenient storage and collection of the waste streams identified.

### Responsible Building Management

The developer ensures sustainability is embedded beyond construction by providing residents with a User Guide, establishing building governance with sustainability as a core principle, educating incoming management on sustainable operations, and integrating sustainability into ongoing management decisions.

### Responsible Finishes

Under the Apartments Pathway, finishes must either: achieve a Responsible Products Value of  $\geq 7$  for 40% of finishes by cost in each scheme package, or follow a prescriptive approach where all carpet, paint, and timber products meet a Responsible Products Value of  $\geq 7$ .

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Best practice design for Indoor Environment Quality means that building occupants can enjoy a comfortable space with high air quality, adequate daylight and ventilation. Indoor environment quality is affected by building orientation and layout, window sizes and specification, shading devices, products used for construction and fit-out and neighbouring structures.

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## PROJECT RESPONSE (CLASS 02)

### Separation from Pollutants

The ventilation systems shall be designed to comply with the separation distances outlined in the table below, which is based on AS 1668.2:2012 and applied in the same way.

AIRFLOW RATE WITHIN THE MINIMUM DISTANCE (L/S)	MIN. SEPARATION DISTANCE FROM DISCHARGE TO INTAKES, OR NATURAL VENTILATION OPENING OF ADJ. SOU OR SITE BOUNDARY (M)	MIN. SEPARATION DISTANCES FROM DISCHARGE TO INTAKES, OR NATURAL VENTILATION OPENING WITHIN SOU (M)
<100 L/s	1	N/A
<200 L/s	2	N/A
<400 L/s	3	2
<600 L/s	4	3
<800 L/s	5	4
<1000 L/s	6	5
>1000 L/s	7	6

### Exhausting wet areas

For each unit, all wet areas such as laundry and bathroom area have been provided with exhaust fans and ductwork that vents moisture out of the building.

### Cleaning Ductwork

All new ductwork that serves the building shall be cleaned prior to occupation in accordance with a recognised Standard, or kept sealed during construction.

### Provision of Outdoor Air

The regularly occupied areas shall be provided with good access to outdoor air, appropriate for the activities and conditions by using one of the following options:

(Note: For this development, regularly occupied areas refers to the residential portion only.)

- Where ventilation is by mechanical means, the building shall provide a 50% improvement of outdoor air over AS1668.2:2012 for the default occupancy.
- Where ventilation is by natural means, an engineered natural ventilation system with a minimum equivalent ventilator area per bedroom and living space of at least 15,000mm<sup>2</sup>, with a minimum total ventilator area of 40,000m<sup>2</sup> per dwelling.
- Any other GBCA approved engineered solution that ensure adequate levels of natural ventilation is provided to occupants without the relying on manual operation of windows or other systems.

### Exhaust or Elimination of Pollutants

Pollutants from indoor activities (e.g. cooking processes and equipment) is exhausted directly to the outside.

All new and existing ductwork must be cleaned before occupation, from the air handling unit to supply vents, in line with recognised standards. If no ductwork exists, these requirements are deemed to be met.

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### Glare from Light Sources

- Glare from light sources must be controlled.
- Luminaires should achieve UGR <19 in living, dining, kitchen, bedrooms, and bathrooms, and UGR <22 in all other areas.

### External glare control

Glare from sunlight through façades and skylights must be controlled using blinds, screens, fixed devices, or other means. Compliance can be shown via a performance method, prescriptive methods, or a combination. Class 2, Class 3, and hospitality buildings must provide blackout blinds or curtains in all bedrooms, with blackout options included as standard if part of packaged décor.

### Acoustic Comfort Strategy

An acoustic comfort strategy shall be prepared detailing how the building design ensures occupant comfort. For each unit and regularly occupied common space, at least two of the following must be achieved:

- Maximum Internal Noise Levels: Ambient noise remains below thresholds.
- Acoustic Separation: Noise transmission between spaces is minimised.
- Impact Noise Transfer: Impact noise is kept within permissible limits.

### Views

At least 60% of regularly occupied areas must have a clear view of a high-quality internal or external feature. All areas within 8 m of such views meet this criterion. High-quality internal views include landscaped spaces, water features, or atria, with landscaping featuring high plant density, xeriscape, or arid-climate designs, either horizontal or vertical.

### Plants & Nature Inspired Design

Indoor plants must be provided in the nominated spaces. One

or more plants in pots with a soil surface area totalling at least 500cm<sup>2</sup> for every 15m<sup>2</sup> of the primary spaces is required.

### Interaction with Nature

- Occupants can interact with nature either inside the building, or externally through a green facade (or wall) or garden.
- At least 5% of the building's regularly occupied areas or land within the site boundary (whichever is greater) must be planted area (either vertical or horizontal).
- The allocated area must be accessible and have the necessary infrastructure to allow the activity to occur (for example water source/ taps for irrigation, storage area for tools and equipment).

## PROJECT RESPONSE (CLASS 01A & 02)

### Lighting Comfort

All indoor lighting shall be LED and:

- Have a minimum Colour Rendering Index (CRI) of 85 or higher.
- Have a MacAdam Ellipse or Standard Deviation Colour Matching of 3 or lower.
- All luminaire control gear must meet the requirements in IEEE 1789-2015 as either being 'Low Risk' or 'No Observable Effect'

### Paints, Adhesives, Sealants, and Carpets

At least 95% of internally applied paints, adhesives, sealants (by volume) and carpets (by area) shall meet stipulated Total Volatile Organic Compounds (TVOC) limits (refer to Appendix 1).

### Engineered Wood Products

At least 95% (by area) of all engineered wood products used in the building shall meet specified formaldehyde emission limits (refer to Appendix 1).

(Formwork, car parking applications, and non-engineered wood products such as milled timber are excluded).

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### Banned or Highly Toxic Materials

A comprehensive hazardous materials survey shall be carried out on any existing buildings or structures on the project site in accordance with Environmental and Work Health and Safety legislations. If asbestos, lead, or PCBs is identified, the materials must be stabilised or removed and disposed of in accordance with best practice guidelines.

### PROJECT RESPONSE (CLASS 01A)

#### Air Quality

##### Mechanical Ventilation - Continuous ventilation

The homes shall installed with a continuous balanced and distributed supply and exhaust with heat recovery (MVHR) with all living and sleeping areas must be shown to be continuously ventilated.

##### Filtration and Pollutant Reduction

The home's ventilation system must be designed to comply with ASHRAE Standard 62.2-2019 (Ventilation and Accept table Indoor .

##### Moisture Management

Moisture management and condensation within the home shall be managed with thermal bridging introduces as required to mitigate heat loss and gain.



Burwood Brickworks. Photography by Kim Landy.

# Resilient

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As we become increasingly reliant on a range of interdependent assets and services, we must also acknowledge that our day-to-day activities can be disrupted as a result of climate change and other externalities such as health pandemics and infrastructure failure. But these disruptions can be addressed by engaging with the community and through smart design to make buildings more resilient.

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## PROJECT RESPONSE (CLASS 01A & 02)

### Climate Change Pre-screening Checklist

A climate change pre-screening checklist will be completed for the project and the risks communicated to the team. A workshop on identifying the stressors based on the climate risks will be held with the design team and development stakeholders.

### Climate Change Risk and Adaptation Assessment (Class 02)

A climate change risk and adaptation assessment has been conducted and any risks rated as 'Extreme' addressed through specific design responses, while any risks rated as 'High' addressed through design or future operational responses.

### Managing Risk

The potential risk will be identified and addressed by the project team.

### Heat Island Reduction

At least 75% of the site area, when viewed in plan view, shall be covered with either and/or a combination of vegetation, solar PV, and materials with a Solar Reflective Index (SRI) of minimum 64.

## PROJECT RESPONSE (CLASS 01A)

### Water Use

The home shall demonstrate achieving a 40% reduction in water use when compared to a reference home using a combination of water efficient fixtures, appliances and rainwater storage.



Barangaroo South. Photography by Simon Wood.

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The IPCC report highlights two critical aspects that the built environment must pursue to be on a 1.5° C trajectory: reducing our energy consumption and switching to renewable energy. It's imperative to ensure both conditions are met, and not trade one off the other.

Energy efficient design is the product of an effective response to environmental factors, early strategic thinking in design and a considered approach to construction.

Achieving a highly energy efficient building doesn't require a significant additional upfront cost. Often, it's just ensuring basic principles of passive design are integrated early on, and that ongoing energy use is considered when selecting building services and appliances.

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## PROJECT RESPONSE (CLASS 02)

### Upfront Carbon Emissions

The building's upfront carbon emissions shall be at least 20% less than those of a reference building, with the emissions reductions occurring as a result of good design and material selection.

Further, where existing buildings less than 30 years old have been fully or partly demolished for construction, an embodied carbon calculation shall be done for the demolished portion and these emissions offset. Where the existing building is between 30 to 50 years old, the contribution shall be calculated and discounted at 10% for every two additional years past year 30. Beyond 50 years, there are no requirements.

### NatHERS Rating

The development shall achieve an average of NatHERS 7.5 stars and meets at least NatHERS 6 stars for each sole-occupancy unit.

### Domestic Hot Water

All showers shall have a min. WELS rating of 4 Stars with a max. flow rate of 6 L/min.

All hot water pipes outside of the SOUs are insulated with a minimum R-Value of 2 and all hot water pipes inside the SOUs are insulated with a minimum R-Value of 0.5.

DHW is provided by an electric heat pump with a minimum COP of 3.0 at 20°C ambient and 65°C leaving temperature.

### Heating & Cooling System

Cooling: DX splits ( $\geq 3.5$  StCESEER), or central systems/chillers at least 10% above NCC efficiency, or no refrigerant cooling.

Heating: DX splits ( $\geq 3$  StCESEER), or central systems/heat pumps  $\geq 10\%$  above NCC, or electric heaters 10% above NCC, or no electric/combustion heating.

### Energy Efficient Appliances

Energy Efficient Appliances are provided to units with appliances the following minimum energy efficiencies are required:

- Fridge - 4.5-stars
- Washing Machine - 4.5-stars
- Dishwasher - 4.0 stars
- Dryer - 6.0-stars

### Lift Lobbies

Lift lobbies and hallways (excluding main entrance lobby to the building) are either:

- Naturally ventilated
- Supply / exhaust air only with no heating or cooling (A/C or tempered)

### Reducing Water Use

The building shall use at least 30% less potable water compared to a reference building.

### Renewable Energy (Class 01a & 02)

The project shall be all-electric.

The building owner actively assist owners and/or tenants to procure renewable electricity. The building owner or management team engages with residents on reducing energy use.

### Offsetting Refrigerants

100% of carbon emissions from refrigerants shall be offset.

## PROJECT RESPONSE (CLASS 01A)

### Thermal Performance

For projects subject to NCC2022 Section J, the building has a weighted-area average of NatHERS 7.5 stars and meets at least

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### Window System

All homes windows will be double glazed IGU (Insulated Glass Units). Window frames must be one of the following:

- Thermally broken aluminium
- UPVC
- Timber
- Timber with aluminium cladding

### Home User Guide

The Home User Guide shall be produced and provided to the owner as part of a handover pack. The Guide shall be provided in a digital format, which can be a PDF, website, mobile application or similar that can be updated if required.

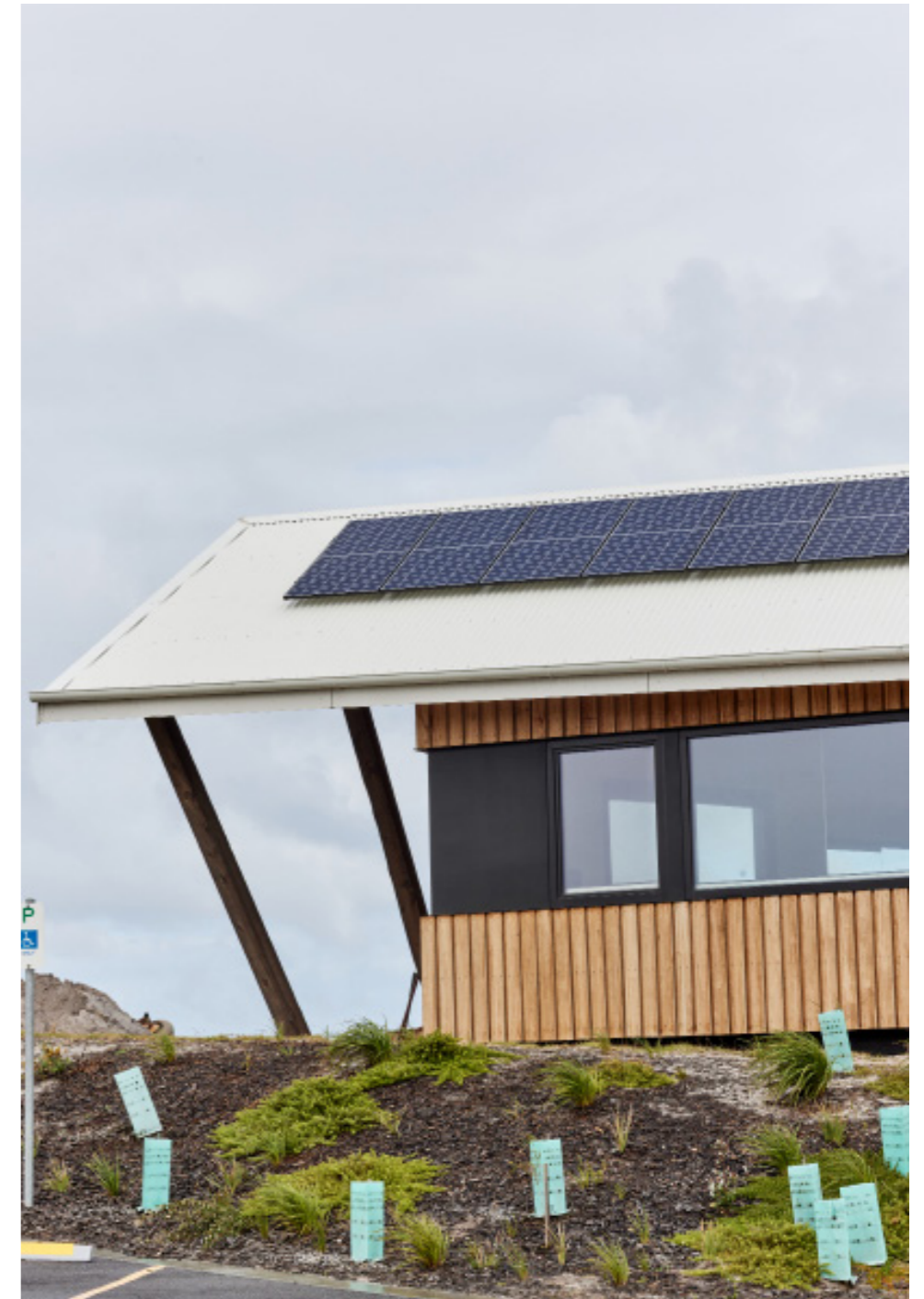
### Hot Water

All homes shall be designed to have a electric heat pump. The hot water system must be designed with no connection to any gas infrastructure.

### Energy Efficiency Appliances

All homes shall include the below requirements

- Fossil Fuel Free - All electric
- Energy Efficient Ratings
  - + Refrigerator 4.5 star Energy rating
  - + Washing machine 4.5 star Energy rating
  - + Dishwasher 4.0 star Energy rating
  - + Dryer 6 star Energy rating
  - + Cooktop All electric
  - + Oven All electric
- Air-Conditioning Systems
  - + Project team must meet the requirements depending on the type of heating and cooling systems installed.



CapePaterson. Photography by Kim Landy.

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As we recognise that buildings cannot be seen in isolation, and that they have both positive and negative impacts on their wider surroundings, it is important that design seeks to maximise the positive whilst limit the negative aspects of development.

### PROJECT RESPONSE (CLASS 02)

#### Bicycle Parking Facilities

The building's access shall prioritise walking and cycling options by providing well lit, weather protected, and separated from vehicles access.

Bicycle parking facilities shall be signposted and ensure the cycling equipment is safely secured. The amount of bicycle parking facilities is to be informed by the Sustainable Transport Plan.

#### Sustainable Transport

Refer to Sustainable Transport Plan prepared by One Mile Grid.

#### Publicly accessible spaces

Communal or public spaces to be included in the development to accommodate community-based activities.

#### Activation strategy

An activation strategy must be provided to ensure place-making continues after practical completion. The strategy must demonstrate how the future occupants and the wider community can contribute to the place activation.

#### Urban Context Report

An urban context report and public realm interface design has been developed to outline the proposed design responses. The report includes:

- An assessment and analysis of the local setting and wider urban context
- An outline of any planned changes to the local area and the project's design response to those changes
- An outline of any local challenges which the building can help to address

- A narrative that demonstrates that the public space is contributing positively to the proposed urban context.

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# People

The built environment has a wide and diverse supply chain. This offers opportunities to positively contribute to environmental and social outcomes beyond the project boundary via considerate procurement processes that consider issues such as diversity and gender equity, inclusion and mental health.

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## PROJECT RESPONSE (CLASS 02)

### On-site Facilities, Policies, and Training

The head contractor shall ensure the following is provided on site:

- Separate gender inclusive bathroom facilities and changing amenities with a high degree of privacy.
- Diverse gender-specific fit-for-purpose personal protective equipment for diverse body sizes and types.

The head contractor shall also:

- Implement policies to address issues of discrimination, racism, and bullying on site
- Introduce on-site redress procedures for any relevant breaches and corrective measures to be put in place should any incident be identified
- Empower a diverse lead team to manage these policies on site
- Provide training to at least 95% of all contractors and subcontractors present on site for at least three days on these policies, and particularly:
  - + Information on drug and alcohol awareness and mental health
  - + Information on policies implemented on discrimination, racism, bullying on site, and safe ways to report poor behaviour

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# Nature

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Rapid urbanisation is putting pressure on ecosystems and threatening biodiversity. It is acknowledged that the impact of urban development on land use and biodiversity, and the best way to have a positive impact on this, varies dramatically according to context.

Through a mindful design, it is possible to shift the focus of the built environment from a passive observer seeking to minimise impacts to one that is actively bringing nature and biodiversity back into cities.

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## PROJECT RESPONSE (CLASS 02)

### Site Ecological Value

The development must assess its ecological impacts, consider community and local stakeholder expectations, and address impacts to nature from light, noise, water, vegetation and any other relevant issues.

### Managing Light Pollution Impacts

All outdoor lighting on the project shall comply with AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting (Table 2.1, column 3) for both pre- and post-curfew requirements.

Further, external luminaries on the project shall have a Upward Light Output Ratio (ULOR) of less than 5%, relative to its actual mounted orientation.

### Wetland Management Plan

A qualified ecologist must prepare a Wetland Management Plan with quarterly monitoring, annual reporting, and ecosystem management for at least 5 years. It must be publicly displayed for 24 months online or at council facilities.

### Context Report

The current ecological values by type of biomass (i.e. terrestrial and aquatic ecological values, geologic features, and soils) is documented and the information used as a foundation to appropriately identify if there is potential for any future ecological value to be incorporated on site.

### Protecting Ecology

Based on the understanding of the site, the project shall demonstrate how ecological values will be protected.

### Retaining High Biodiversity Values

If an ecologist identifies high biodiversity value, at least 50% must be retained contiguously. The project must explain how impacts (light/noise, habitat connectivity, water quality, migratory paths, and two local issues) are mitigated during all stages. If no biodiversity exists, the project must show how it will add biodiversity value.

### Landscape Area

At a minimum, external landscape, whether horizontal or vertical shall be provided at a ratio of either 15% of the site area or at a ratio of 1:500 of the GFA, whichever is larger.

### Diversity of Species

Landscape shall be shown to be diverse and include multiple species/genus/etc.

Greater than 60% of plants shall be indigenous and the site shall include at least one significant (nesting) tree or equivalent habitat provision per 500m<sup>2</sup> of landscaped area.

No invasive species are allowed (as per the Australian Weeds Strategy 2017 to 2027)

### Biodiversity Management Plan

A Biodiversity Management Plan shall be prepared by an ecologist or landscape architect outlining key actions that shall be undertaken in order to maintain the ecological integrity of biodiversity on the site, whether this is existing or that created as part of the development.

# Conclusion

This Sustainability Management Plan (SMP) has been prepared to communicate the approach taken to embed sustainability into the design, construction and operation of the proposed 43-67 River street, Richmond.

The project prioritises sustainable outcomes, with many features embedded into the design and construction to realise a high-performing project that benefits people, place and planet.

## CONCLUDING REMARKS

This report outlined the range of sustainability initiatives that have been included in the design of the proposed River street, Richmond development.

The development proposal demonstrates a holistic approach to sustainable urban development that addresses the ESD objectives of the council, and the wider-precinct.

A copy of the Green Star Buildings scorecard used to benchmark this assessment is attached in Appendix F.

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No Planet B. Photography by Kim Landy.

# Appendix A - Preliminary NatHERS Assessment

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# Thermal Performance

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A preliminary NatHERS assessment on a sample set of representative apartments has been completed using the NatHERS software Hero v4.1 to inform the design in relation to insulation and glazing specifications and to ensure the key projects requirements can be met.

This section describes the assumptions used and result obtained.

**Note:** External shading devices such as eaves and overhangs have been accounted for within modelling as documented on General Arrangement Plans and Elevations.

## BUILDING FABRIC ASSUMPTIONS

The following table summarises the modelling parameter used as part of the assessment.

ITEM	THERMAL PERFORMANCE VALUES	COMMENTS
EXTERNAL WALLS	R2.7 (90mm)	90mm steel frame @ 600
PARTY WALLS	R2.7 (90mm)	90mm steel frame @ 600
INTERNAL WALLS	Uninsulated	90mm steel frame @ 600
CONCRETE ROOF AND EXPOSED CEILING	R4.46(200mm)	Direct fixed to underside of concrete slab
METAL ROOF AND EXPOSED CEILING	R4.0 (215mm) plus R1.3 (60mm) roof blanket	Primary layer at ceiling level plus non-reflective roof blanket below roof sheeting (in steel frame)
GROUND FLOOR FLOORS	Uninsulated	In contact with ground
INTERMEDIATE FLOORS	Uninsulated	Between apartments
INTERMEDIATE EXPOSED FLOORS	R2.0 (50mm)	Direct fixed to underside of concrete slab
GLAZING PERFORMANCE	Awning, Sliding and fixed (Class 02)- $U_w$ 2.9 (or less) SHGC <sub>w</sub> 0.51 (±10%) Awning, Sliding and fixed (Class 01)- $U_w$ 2.2 (or less) SHGC <sub>w</sub> 0.32 (±10%)	Double glazed in thermally broken aluminium frames Minimum 1x operable window or sliding door per bedroom Minimum 1x sliding door to primary living room

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## BUILDING FABRIC ASSUMPTIONS

The following table summarises the modelling parameter used as part of the assessment.

<b>DOWNLIGHTS</b>	Number currently assumed as follow: <ul style="list-style-type: none"><li>- 2x in bedrooms</li><li>- 2x in bathrooms / ensuites</li><li>- 6x in kitchen / living areas</li><li>- 1x in laundries, and walk in pantries</li></ul>
<b>EXHAUST FANS</b>	Number currently assumed as follow: <ul style="list-style-type: none"><li>- 1x in kitchen</li><li>- 1x in bathrooms</li><li>- 1x in laundry</li></ul>

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# Thermal Performance Class 02

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The assessment for building SW&NW demonstrates the average NatHERS rating exceeds the project's 7 star target at 8.2 stars.

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### THERMAL PERFORMANCE RESULTS

LEVEL	DWELLING	NATHERS RATING	COOLING LOAD (MJ/m <sup>2</sup> )	HEATING LOAD (MJ/m <sup>2</sup> )	TOTAL (MJ/m <sup>2</sup> )
Level GF	AG01	8.2	9.3	31.5	40.7
Level GF	AG07	8.2	17.1	23.3	40.4
Level GF	BG02	9.4	6.8	11.2	18.0
Level 2	A202	7.5	23.4	28.4	40.4
Level 2	A205	8.4	18.4	17.8	18.0
Level 2	B203	9.0	16.3	8.6	40.3
Level 2	B210	7.9	24.0	20.9	52.4
Level 3	A307	8.3	18.5	20.3	24.5
Level 3	A309	9.3	7.9	12.9	66.4
Level 3	A311	8.0	12.5	30.6	29.2
Level 3	B307	8.1	15.7	25.5	38.7
Level 6	A606	8.8	15.1	14.0	20.8
Level 7	A701	6.8	11.6	54.8	43.1
Level 8	A803	8.2	10.0	30.3	41.3
Level 8	B804	7.4	10.8	41.6	51.7
Level 8	B807	9.0	11.0	13.5	36.2
Level 11	A1103	6.9	9.2	54.5	40.7
		8.2	14.0	25.9	39.8

# Thermal Performance Class 01a

The assessment for building townhouses demonstrates the average NatHERS rating exceeds the project's 7.5 star target at 7.7 stars.

The average NatHERS across the development exceeds the project's 7.0 star target at 8.0

## THERMAL PERFORMANCE RESULTS

LEVEL	DWELLING	NATHERS RATING	COOLING LOAD (MJ/m <sup>2</sup> )	HEATING LOAD (MJ/m <sup>2</sup> )	TOTAL (MJ/m <sup>2</sup> )
Level GF	TH02	7.9	19.0	26.2	45.1
Level GF	TH06	7.4	19.5	33.3	52.8
Level GF	TH11	7.9	18.3	26.0	44.3
	AVG	7.7	18.9	28.5	47.4
	TOTAL AVERAGE	8.0	16.5	27.2	43.6

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# Appendix B - Daylight Assessment

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# Daylight Access Strategy

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A preliminary daylight study of the typical levels has been conducted for the proposed development in order to demonstrate that appropriate levels of daylight access can be achieved.

The design intent has been to prioritise optimal solar orientation while balancing other key site constraints. The majority of apartments are oriented north, east, or west to maximise passive solar heating and natural daylight access. In cases where apartments face North, East—in Buildings A & B—these typically have dual orientations to either the east, north or west, thereby benefiting from additional daylight exposure and cross-ventilation opportunities.

Daylight modelling, as documented in the SMP, confirms that all units meet the criteria specified in the Green Star Apartments guide.

## COMPUTATIONAL DAYLIGHT ASSESSMENT

The daylight autonomy methodology has been used to evaluate daylight access to all regularly occupied spaces within the development (namely bedrooms and living areas). Daylight autonomy utilises location-based weather data over the course of an entire year and thus provide an accurate representation of the percentage of annual daytime hours that a given point in a space is above a specified illumination level.

Daylight modelling has been conducted using Climate Studio which uses the Radiance daylight simulation engine to model daylight access to a space.

The parameters used as part of the assessment are summarised in the following table.

### GENERAL BUILDING SIMULATION PARAMETERS

Site rotation from true north	8 degree from true north
Building Class	2 (Residential)
Weather Data	AUS_VIC.Melbourne.948680_RMY.epw
Sky	Climate based
Software	Climate Studio
Working Plane	FFL
Compliance Threshold	sDA160/80%

### SURFACE REFLECTANCE

Ceilings	0.70 exposed concrete
Floors	0.40
Walls	0.80
Shading	0.20
Ground	0.20

### GLAZING VISIBLE LIGHT TRANSMITTANCE

External Glazing	0.70
------------------	------

### GEOMETRY

Overshadowing	Neighbouring buildings that provide overshadowing have been included within the model.
Local shading	All balconies, canopies and reveals have been modelled as per the architectural drawings.

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# Results Summary

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The daylight assessment shows 100% compliance where 80% of apartment units meet 160Lux for 60% of the combined living and bedroom areas with each room achieving daylight for 20% of its area.

The remaining 20% of apartment units must meet 160 lux for at least 40% of living and bedroom areas, with each room achieving daylight for 20% of its area.

Kitchens are not included in the calculations.

LEVEL	APARTMENTS		TOWNHOUSES	
	COMPLIANT LIVING	COMPLIANT BEDROOM	COMPLIANT LIVING	COMPLIANT BEDROOM
GROUND	27/27	73	13/13	41/41
L01	25/25	52		
L02	25/25	52		
L03	23/23	49		
L04	22/22	47		
L05	21/21	48		
L06	21/21	48		
L07	12/12	36		
L08	12/12	36		
L09	4/4	12		
L10	4/4	10		
L11	4/4	10		
<b>TOTAL COMPLIANT</b>	<b>200/200</b>	<b>473/473</b>	<b>13/13</b>	<b>28/41</b>
<b>TOTAL COMPLIANCES</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

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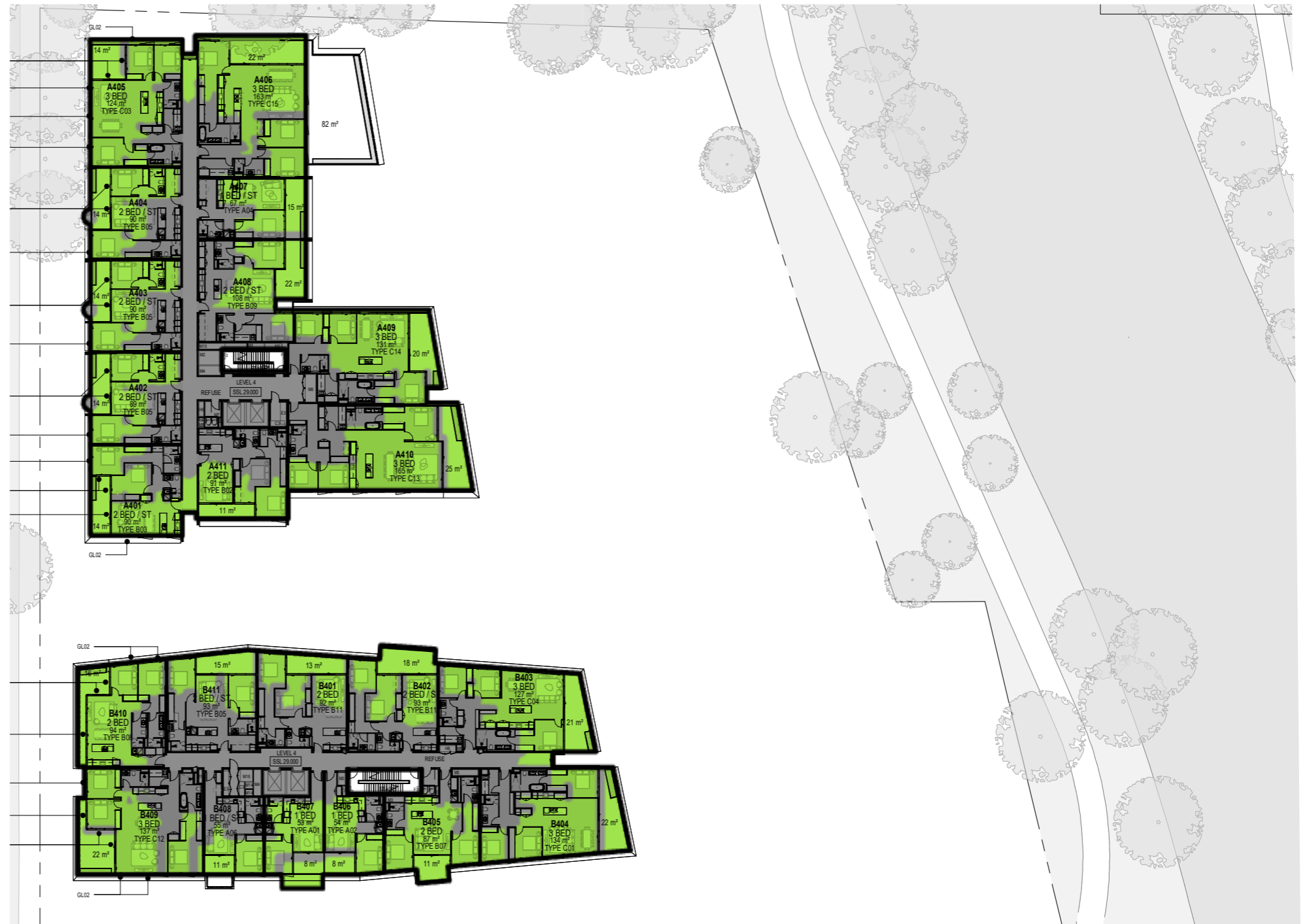
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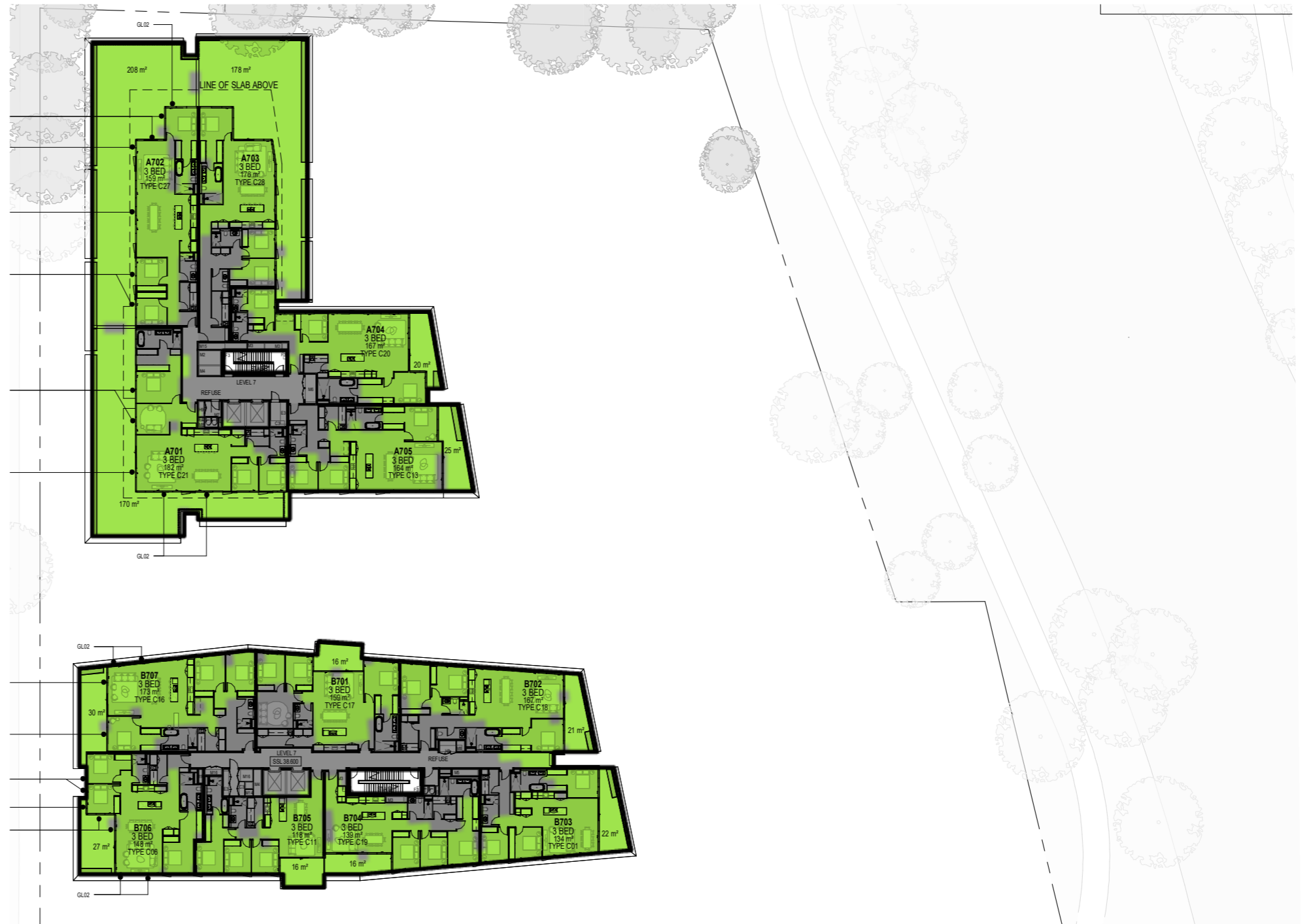
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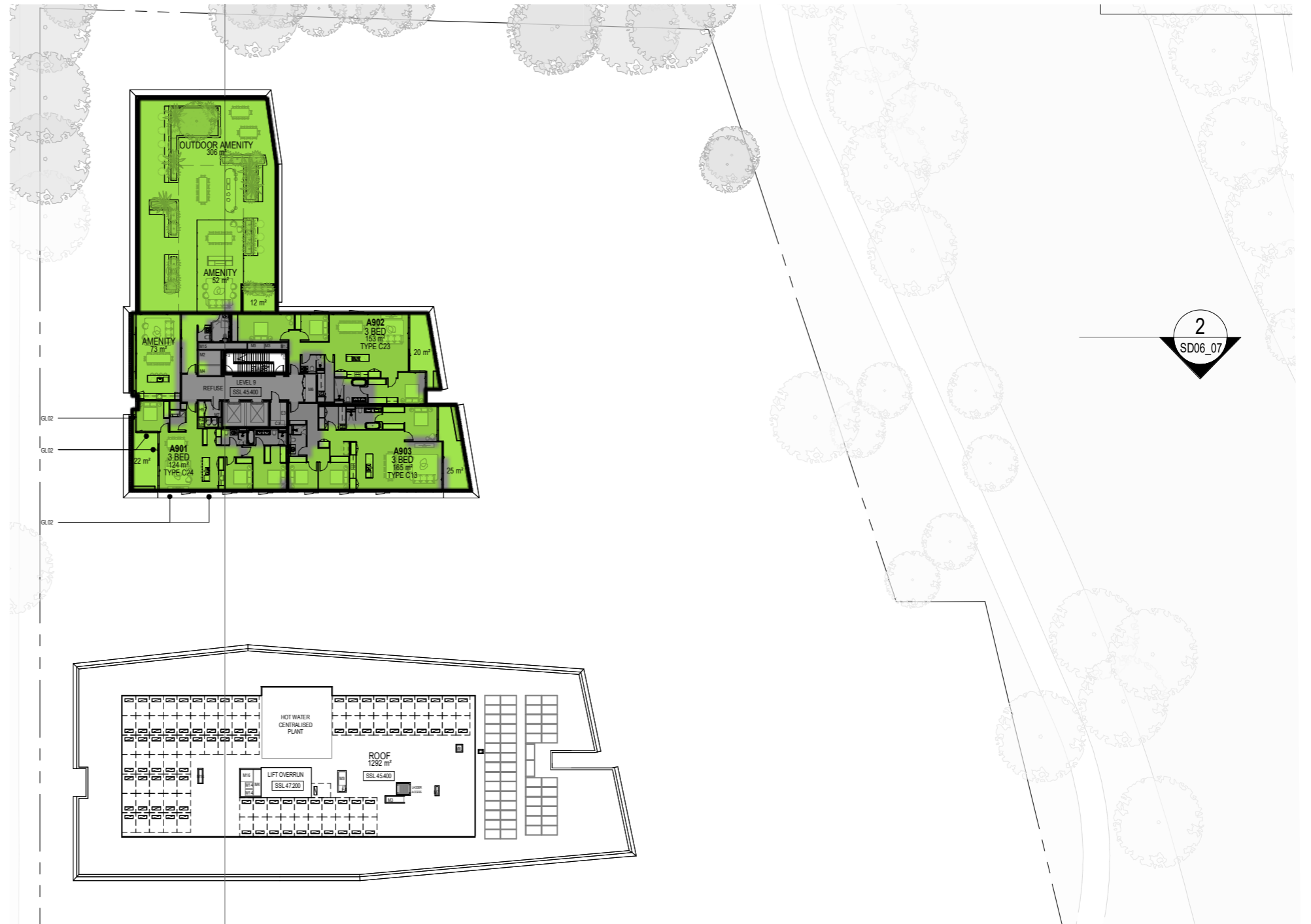
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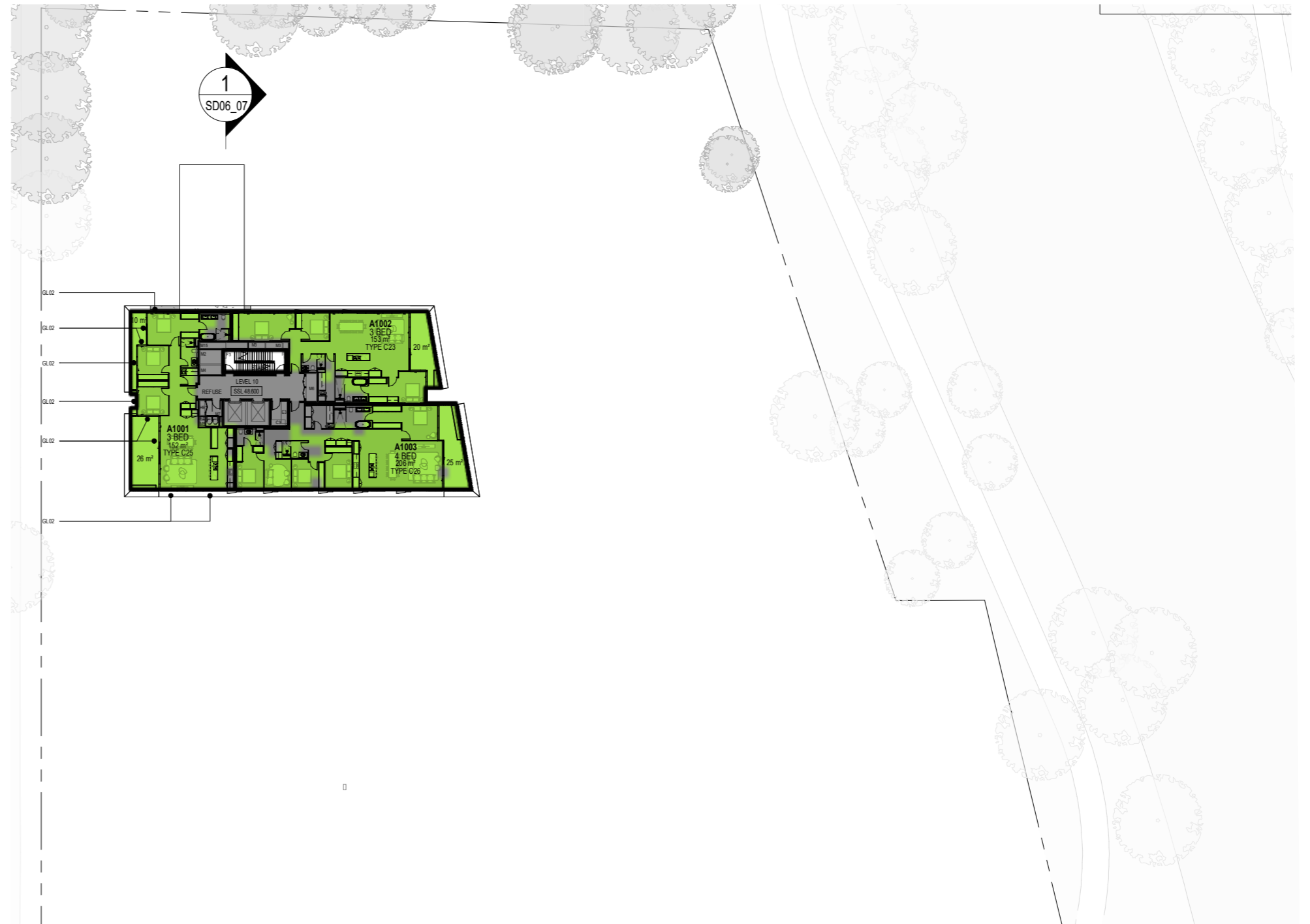
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## Appendix 2 - TVOC and Formaldehyde Emission Limits

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The following tables list the TVOC Emission Limits applicable to the project.

### TOTAL VOLATILE ORGANIC COMPOUNDS

The following TVOC limits are applicable to all internal applications of all types of paints, adhesives or sealants applied on-site, including both exposed and concealed applications. If exterior grade products are used in an internal application then these must also meet the requirements.

Further, carpets used in the project must either be:

- Certified under a recognised Product Certification Scheme (listed on the GBCA website) or other recognised standards; or
- Compliant with the Total VOC (TVOC) limits specified in the following table.

PRODUCT TYPE	MAXIMUM TVOC CONTENT (G/L OF READY TO USE PRODUCT)
General purpose adhesive and sealants	50
Interior wall and ceiling paints, all sheen levels	16
Trim, varnishes and wood stains	75
Primers, sealers and prep coats	65
One and two pack performance coatings for floors	140
Acoustic sealants, architectural sealant, waterproofing membranes and sealants, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100

TEST PROTOCOL	MAXIMUM TVOC CONTENT (MG/M2 PER HOUR)
ASTM D5116 – Total VOC limit	0.5
ASTM D5116 – 4-PC (4 – Phenylcyclohexene)	0.05
ISO 16000 / EN 13419 – TVOC at three days	0.5
ISO 10580 / ISO/TC 219 (Document N238) – TVOC at 24 hours	0.5

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# Formaldehyde Emission Limits

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The following tables list the Formaldehyde Emission Limits applicable to the project.

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### ENGINEERED WOOD PRODUCTS

The term “engineered wood products” includes composite wood products and includes raw/ unfinished as well as finished products. Items not covered by these limits include products used in exterior applications, formwork, internal car park applications, re-used products, and raw timber. All emission levels must be established by a NATA or ISO/IEC 17025 registered laboratory as per the testing methodologies in the table below.

TEST PROTOCOL	EMISSION LIMIT / UNIT OF MEASUREMENT
AS/NZS 2269:2004, testing procedure AS/NZS 2098.11:2005 method 10 for Plywood	≤1.0 mg/L
AS/NZS 1859.1:2004 - Particle Board, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.5 mg/L
AS/NZS 1859.2:2004 - MDF, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.0 mg/L
AS/NZS 4357.4 – Laminated Veneer Lumber (LVL)	≤1.0 mg/L
Japanese Agricultural Standard MAFF Notification No.701 Appendix Clause 3 (11) - LVL	≤1.0 mg/L
JIS A 5908:2003- Particle Board and Plywood, with use of testing procedure JIS A 1460	≤1.0 mg/L

TEST PROTOCOL	EMISSION LIMIT / UNIT OF MEASUREMENT
JIS A 5905:2003 - MDF, with use of testing procedure JIS A 1460	≤1.0 mg/L
JIS A1901 (not applicable to Plywood, applicable to high pressure laminates and compact laminates)	≤0.1 mg/ m <sup>2</sup> hr
ASTM D5116 (applicable to high pressure laminates and compact laminates)	≤0.1mg/m <sup>2</sup> hr
ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates	≤0.1 mg/m <sup>2</sup> hr (at 3 days)
ASTM D6007	≤0.12mg/m <sup>3</sup> **
ASTM E1333	≤0.12mg/m <sup>3</sup> ***
EN 717-1 (also known as DIN EN 717-1)	≤0.12 mg/m <sup>3</sup>
EN 717-2 (also known as DIN EN 717-2)	≤3.5 mg/m <sup>2</sup> hr

\*\*The test report must confirm that the conditions of this table comply for the particular wood product type, the final results must be presented in EN 717-1 equivalent (as presented in the table) using the correlation ratio of 0.98.

\*\*\* The final results must be presented in EN 717-1 equivalent (as presented in the table), using the correlation ratio of 0.98.

# Appendix C - Climate Change Adaptation

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A holistic response to climate change requires a thorough understanding and assessment of the risk that it poses to our businesses, asset portfolios, and communities.

A climate change risk assessment consistent with AS 5334-2013 'Climate change adaptation for settlements and infrastructure – A risk based approach' shall be completed prior to the Design Development phase. This initial analysis aims to indicate some potential risks that may need to be investigated and addresses as part of the design.

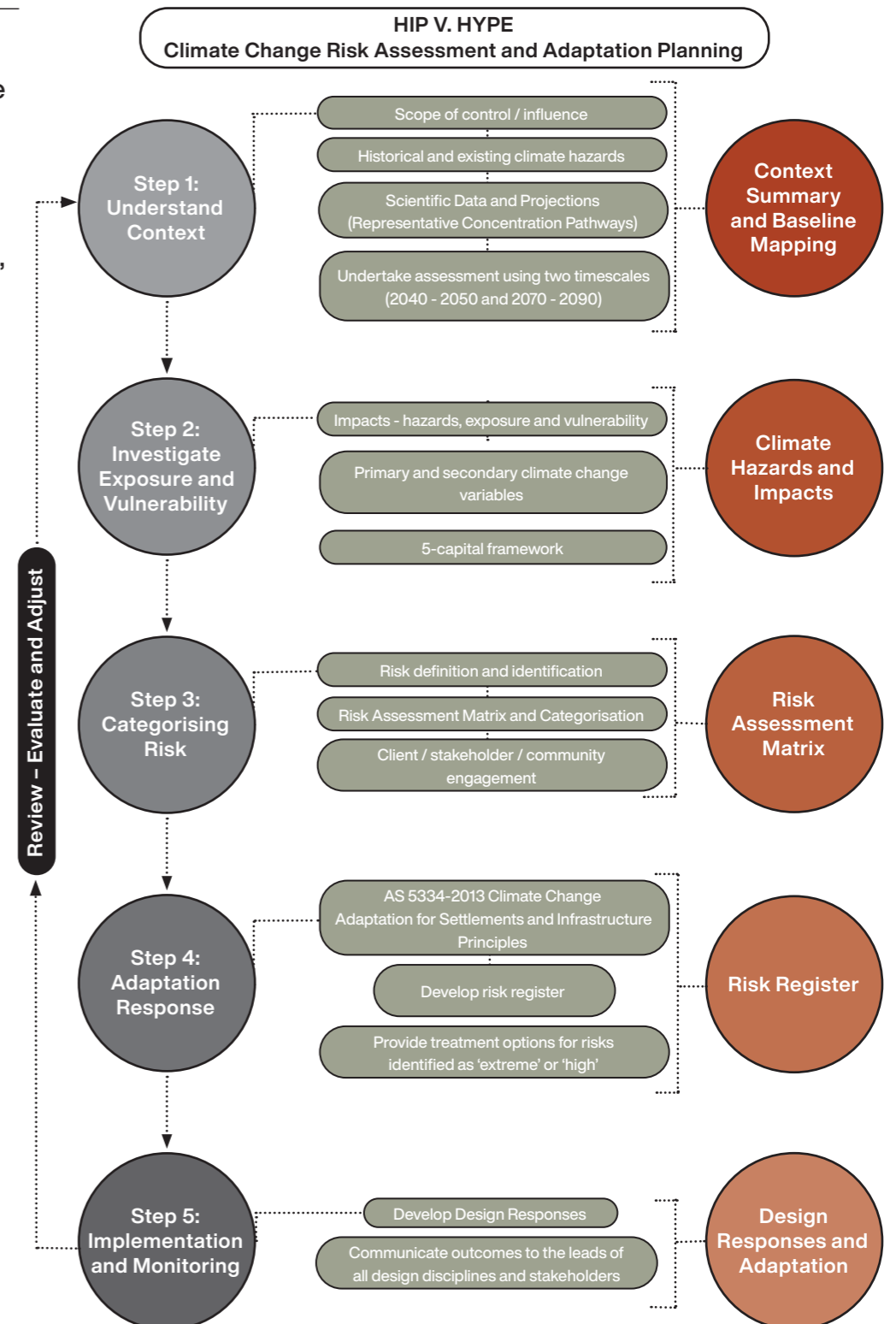
### CLIMATE CHANGE RISK AND ADAPTATION ASSESSMENT

The climate change risk and adaptation assessment will evaluate existing site conditions in regards to current and future climate conditions using climate projections from the ICPP under different emission scenarios.

Project specific climate hazards and impacts will be identified and a risk assessment completed. All risks identified as 'extreme' or 'high' will be addressed via design and/or operational management strategies.

An outline of the typical Climate Change Risk Assessment and Adaptation process undertaken by HIP V. HYPE is outlined in the image on the right.

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# Climate Change Adaptation

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The site is currently exposed to significant levels of urban heat, due largely to the absence of significant vegetation and canopy cover.

The map to the right indicates that temperatures within the subject site are approximately 5-10°C higher than a rural (moderately vegetated) environment. The current conditions are already similar to highly developed areas such as the Melbourne CBD.

Given that land development can exacerbate urban heat by replacing natural surfaces with non-permeable, high thermal mass materials – these conditions prompt a need to design the built environment and streetscape to instead provide shade, reflect heat and where possible embrace and retain water to deliver urban cooling benefits.

The proposed development will have to mitigate this through increased vegetation and canopy cover, passive irrigation and material and colour selections that reflect heat away (i.e. lighter colours) as opposed to absorbing it (i.e. darker colours).

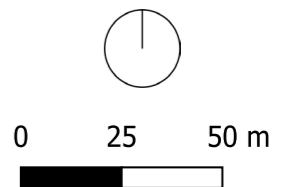
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## Legend

Urban Heat (°C)

- 0 - 2
- 2 - 4
- 4 - 6
- 6 - 8
- 8 - 10
- 10 - 12
- 12+



Urban Heat Island Map

## ADVERTISED PLAN

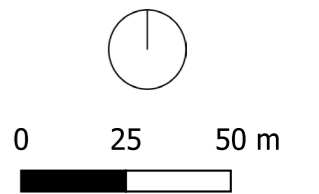
The map shows the flooding risk in the area.

### Legend

PLAN\_OVERLAY

LSIO

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Flooding Map

# Climate Change Pre-Screening Checklist

A preliminary climate change pre-screening checklist has been completed for the project. This has identified that the site is located in an area that has previously been subject to extreme climate events and that the development is likely to accommodate occupants vulnerable to the impacts of climate extremes.

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PRE-SCREENING ITEM	APPLIES TO PROJECT	HAS DATA REGARDING FUTURE CLIMATE EXPOSURE BEEN REVIEWED?	HAS A RISK TO THE PROJECT BEEN IDENTIFIED?	HAS A RISK TREATMENT BEEN IDENTIFIED?
The project area has previously been impacted by extreme climate events (e.g. storms/ tropical cyclones, extreme rainfall and flooding, damaging winds, damaging hail, bushfires, heatwaves, drought, or coastal inundation).	Yes	Yes	Yes	Yes
The project is located in a cyclone zone.	No	N/A	N/A	N/A
The is project located in or adjacent to a bushfire prone area.	No	N/A	N/A	N/A
The project is located in or adjacent to a flood prone area.	Yes	Yes	Yes	Yes
The project is located at or adjacent to the coastline or tidally influenced waterway.	No	N/A	N/A	N/A
The project will accommodate occupants vulnerable to the impacts of climate extremes (e.g. children, elderly, low mobility, seeking medical treatment).	Yes	Yes	Yes	Yes

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# Appendix D - Energy Demand

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# NCC Section J Deemed-To-Satisfy

A preliminary Energy Efficiency assessment of the building thermal envelope has been conducted following the Deemed-to-Satisfy method.

The final Section J may be conducted following either a DTS or a Verification Method or a combination of the two.

The proposed building fabric performance values consider council planning requirements as well as project sustainability objectives.

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## ENERGY EFFICIENCY ASSESSMENT

A preliminary Energy Efficiency assessment has been conducted to advise on the thermal performance requirements of the building thermal envelope in order to meet Council ESD expectations and to ensure that the development has the design potential to achieve its sustainability ambitions.

Speckel has been used to complete the predictive modelling. Speckel utilises EnergyPlus (version 9.5.0 + and 22.2) for all building simulation modelling which is tested according to ASHRAE Standard 140 methodology.

The following table outlines the assumptions that have been used as part of the preliminary assessment.

FABRIC ELEMENT	REQUIREMENT
External walls	R <sub>t</sub> 1.4
External spandrels	R <sub>t</sub> 1.1
Internal walls	R <sub>t</sub> 1.4
Floors	R <sub>t</sub> 2.2
Roofs	R <sub>t</sub> 3.7
Glazing	U <sub>w</sub> 3.50 SHGC <sub>w</sub> 0.35

Please note the preliminary requirement demonstrates a 10% improvement over the NCC minimum.

**Part J4 Building Fabric**

---

**3.70** m<sup>2</sup>.°K/W ✓

↕ Roof R-Value

3.70

3.70 (min)

---

**0.45** ✓

☼ Roof Solar Absorptance

0.45

0.45 (max)

---

**J4D6 Walls and glazing (Method 2)**

Class 5 Office ✓

---

**2.00** m<sup>2</sup>.°K/W ✓

↕ Floor R-Value

2.00

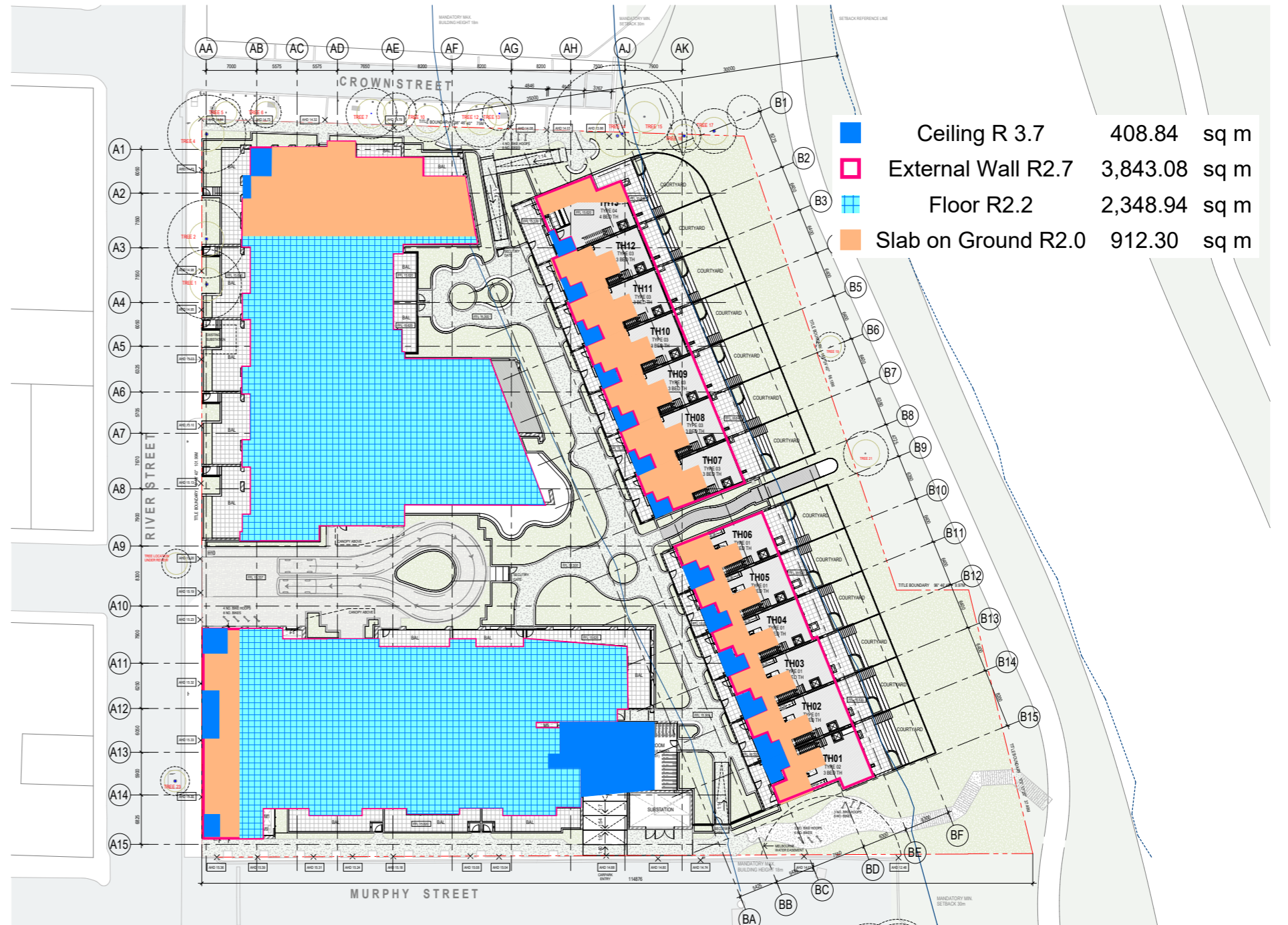
2.00 (min)

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# Wall, Floor and Roof Insulation mark-up Ground Floor

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# Appendix E - Green Star Scorecard

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Client Cbus  
Town Planner  
Architect SJB  
Sustainability Consultant HVH  
Traffic Consultant  
Surveyors  
Building Services Engineers IGS  
Structural & Civil Engineer WEB  
Acoustics  
Landscape Arcadia  
Access

Summary	Homes	Buildings
Targeted Green Star Rating	NA	5 Star TBC
Credit Achievement	0	41 10
Exceptional Performance	0	3 0
Leadership points targeted	0	1 0
Total points targeted	0	45 10
Total points required		35

Buffer 29% \* It is recommended to have 15% buffer  
CBP Mandatory point/credit

Credit Number	Credit Name	Points available	Credit Tier	Target Points	Target Points	Points TBC	Credit Elements	Credit Requirements	Documentation Requirements	Responsibility	Project Stage	
<b>Responsible</b>												
01	Industry Development	1	Credit Achievement	NA	1		Green Star Accredited Professional	The Green Star AP must: • Act as the 'Project Contact' for the purposes of communicating with the GBCA; • Provide advice, guidance and support from project registration through to certification to the rest of the project team; and • Ensures the project team has access to the information covering Green Star principles, structure, timing and process including: – Eligibility – Green Star strategy – Technical Questions – The submission – Certification process – Green Star branding and marketing rules.	Letter of appointment from the client or head contractor confirming the appointment of a Green Star AP in the project, including the scope of works	Client	Schematic Design	
								Sample Meeting minutes demonstrating input from the Green Star AP	Sustainability Consultant	Practical Completion		
								Letter from the Client confirming that the Green Star AP satisfactorily fulfilled their engagement responsibilities as per the scope of works and requirements of this credit	Client	Practical Completion		
								Completed Green Star Financial Transparency disclosure template	Client	Practical Completion		
								Statement or report from quantity surveyor, project	Quantity	Practical		
								Professional photos of the finished project and information for a Case Study	Client	Practical Completion		
02	Responsible Construction	N/A	Minimum Expectation	NA	Complies		Environmental management system	The builder or head contractor (responsible party) must have a formalised systematic and methodical approach to planning, implementing and auditing in place during construction. • For projects valued at over \$10 million, the responsible party must have an Environmental Management System (EMS) certified to a recognised standard such as AS/NZS ISO 14001, BS 7750 or the European Community's EMAS. The EMS can be stand-alone or part of an integrated management system and must be valid for the duration of construction activities	An auditor report showing compliance with the EMS. An auditor report for the organisation, rather than the site, can suffice. If it is for the organisation, the builder or head contractor must confirm effective use of the EMS on the particular site	Head Contractor	Pre-Construction	
								Environmental management plan	A project specific Environmental Management Plan (EMP) must be developed to cover the scope of construction activities to assist the head contractor and its service providers to manage environmental performance conditions and impacts arising from demolition, excavation, and construction. It must be implemented from the start of construction and include all works within the project scope.	Environmental Management Plan	Head Contractor	Pre-Construction
									Demolition or Site Drawings indicating the structures on site at time of purchase, extent of demolition and retained structure and facade	Architect	Pre-Construction	
								Construction and demolition waste	Projects must divert at least 80% of construction and demolition waste from landfill. A Disclosure Statement is required from waste contractors and processing facilities outlining how the company and their reporting aligns with the Green Star Construction and Demolition Waste Reporting Criteria. Special waste and excavation waste are excluded from this requirement. However, soil generated from site clean-up works which incorporates soil leaving the site mixed with general construction and demolition waste must be included in the waste-to-landfill calculations, as it forms part of the building site's general waste profile.	Cumulative waste report generated from the monthly waste reports provided by the waste contractor over the entire duration of construction and demolition works	Head Contractor	Practical Completion
									Disclosure statement outlining how the contractor or facility aligns with the Green Star Construction and Demolition Waste Reporting Criteria	Head Contractor	Pre-Construction	

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					<b>Sustainability training</b>	The head contractor must provide the following training to 95% of all contractors and subcontractors present on site for at least three days: • Information on the sustainable building certification(s) sought, including: – the sustainability attributes of the building and their benefits; – the value of certification; and – the role site worker(s) play in delivering a sustainable building.	Evidence of training materials and register of attendance	Head Contractor	Pre-Construction
					<b>Construction and demolition waste diversion</b>	Projects must divert at least 90% of construction and demolition waste from landfill. The waste contractors and waste facilities must comply with the Green Star Construction and Demolition Waste Reporting Criteria. Waste must be measured in kilograms.	Compliance Verification Summaries from waste contractor(s) and waste processing facilities as detailed in the Green Star Construction and Demolition Waste Reporting Criteria document.	Head Contractor	Construction
							Demolition or Site Drawings indicating the structures on site at time of purchase, extent of demolition and retained structure and façade	Architect	Tender Documentation
							Comulative waste report generated from the monthly waste reports provided by the waste contractor over the entire duration of construction and demolition works.	Head Contractor	Practical Completion
					<b>Metering and monitoring</b>	<b>Metering</b> The building must have accessible energy and water metering for all common uses, major uses, and major sources. The meters must be connected to a monitoring system capable of capturing and processing the data produced by the meters. The meters and automatic monitoring systems must: • Provide continual information (up to 1-hour interval readings) • Be commissioned and validated per the most current 'Validating Non-Utility Meters for NABERS Ratings' protocol to support future achievement of a NABERS rating, irrespective of the current viability of a NABERS rating for the building or building type • Ensure all meters including utility meters and sub-meters to have accuracy declarations and/or certificates (for an example Utility Meters will have certificates issued by the National Measurement Institute) • Sub-meters that are not to be used as utility (billing) meters should either have Certificates for accuracy issued by NMI or a test certificate from the European Measuring Instruments Directive - 2004/22/CE <div style="border: 1px solid red; padding: 5px; text-align: center; color: red; font-weight: bold;">             This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright           </div>	Plan drawings showing the location of all energy and water meters in the project and the associated energy and water uses	Building Services Engineers	Design Development
							Schematic drawings, which are clearly coordinated with the plan drawings and the metering plan demonstrating adequate meter coverage and appropriate calculations or check mechanisms to allow provision of reporting and error detection as per the credit compliance requirements	Building Services Engineers	Design Development
							Letter of confirmation from the contractor/metering provider/manager demonstrating that the metering systems are continually and automatically monitored by a system that is able to produce alerts if any inaccuracies are found	Head Contractor	Practical Completion
							Commissioning reports demonstrating correct operation of meter reading, reporting and alarm generation	Head Contractor	Practical Completion
							Accuracy certificates for meters	Head Contractor	Practical Completion
							Completed Metering Validation sheets/documents to demonstrate metering system meets the NABERS Protocol for validation of non-utility meters	Head Contractor	Practical Completion
					<b>Monitoring strategy</b> The monitoring system must accurately and clearly present the metered data and include reports on consumption trends for the automatic monitoring system. The monitoring strategy must be developed in accordance with a recognised Standard, such as CIBSE TM39 Building Energy Metering. The monitoring strategy must include a metering schedule and identify the location and types of meters. The monitoring system must raise an alarm when the energy or water use increases beyond certain parameters and automatically issue an instant alert to the facilities manager. The process to assess, correct and validate alerts or faults must be detailed and contained in an accessible location. The project team must demonstrate the reporting and alarm functionality has been designed, installed, commissioned, and tested at practical completion to be awarded this credit. System capability for future implementation is not sufficient.	Copy of Monitoring Strategy document specific to the building, including calculations demonstrating that all significant water and energy sources and uses are adequately covered in terms of both usage and accuracy verification	Building Services Engineers	Design Development	
					<b>Environmental performance targets and information</b> At design, the project team must set and document environmental performance targets for the project outlining: • The targets for the project energy and water consumption for each individual nominated building system • Metering diagrams for energy and water • Operational monitoring expectations of energy, water, and indoor environment quality • Descriptions of the functions, intended operation, and maintenance requirements of individual nominated building systems • Airtightness targets	Owner's project requirements document, or an equivalent document, providing a clear description of the basic functions, operations, and maintenance of the nominated building systems. It must list targets for the project energy and water consumption for all individual nominated building systems.	Sustainability Consultant	Schematic Design	
					<b>Services and maintainability review</b> During design, the project team must conduct a services and maintainability review of the building.	Service and Maintainability Report, where the service and maintainability review is summarised	Client ICA	Design Development	

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03	Verification and Handover	N/A	Minimum Expectation	Complies	Complies	Commissioning & Tuning	<p>The review must include all project team roles involved within the design process i.e. Owner's Representative, Design consultants, Architect, ESD Consultant, Facilities Manager, Head Contractor and the Independent Commissioning Agent (where nominated). The review must address the following:</p> <ul style="list-style-type: none"> <li>• Commissionability</li> <li>• Controllability</li> <li>• Maintainability</li> <li>• Operability</li> <li>• Safety of all systems.</li> </ul> <p>The services and maintainability review and its outcomes must be summarised in a 'Service and Maintainability Report'. All items must be addressed, closed-out and documented within the final Services and Maintainability Report and signed off by all involved parties prior to tender.</p>		Building Services Engineers	
							<p><b>Building commissioning</b> During construction and before practical completion, all building systems must be commissioned per a recognised commissioning standard (CIBSE or ASHRAE commissioning guides). A commissioning specification must be included in the construction documentation listing requirements for each system.</p> <p>A commissioning plan must be developed prior to practical completion.</p> <p>The contractual tender or construction documentation must list the commissioning requirements for each system. It is not enough to state that systems must be commissioned to the relevant standard. The person responsible for the commissioning of the nominated services must have specific and demonstrable knowledge of the types of systems to be commissioned.</p>	Building Tuning Commitment or contract demonstrating that there is a requirement for a building tuning process	Client	Tender Documentation
							<p>Design review - drawings showing the air barrier layer in plan and section view</p>	Extract(s) from the Commissioning Report demonstrating that comprehensive pre-commissioning activities and commissioning activities have been performed	Head Contractor	Practical Completion
							<p><b>Airtightness</b> Airtightness must be included as part of the commissioning process during the following stages: Schematic design: review of design including an air barrier system schematic Design Development: review of airtightness including air barrier continuity on building plans, sections, and details. Separation and coordination between trades and responsibilities must be demonstrated. Pre-Construction: A plan for stages of commissioning for air tightness must be defined and included in the project timeline. Construction: Airtightness testing must be carried out in accordance with the pre-construction phase airtightness testing plan. Testing must be carried out by a suitably qualified practitioner. If a quantitative test to determine an air permeability rate is used, it must be conducted on the whole building system according to AS/NZS ISO 9972:2015 Thermal performance of buildings - determination of air permeability of buildings - Fan pressurisation method. On sections smaller than the whole building qualitative procedures such as ASTM E1186-17 may be used.</p>	Design review - drawings showing the air barrier layer in plan and section view as well as critical junction to confirm air barrier layer continuity.	Architect, Façade Engineer, and airtightness consultant	Design Development
							<p><b>Building system tuning</b> The owner or developer must contractually commit to a tuning process that includes quarterly adjustments and measurements for at least the first 12 months after occupation. The commitment must include:</p> <ul style="list-style-type: none"> <li>• A building tuning manual or plan</li> <li>• A description of the building tuning team</li> <li>• Confirmation the owner has engaged parties to tune the nominated systems</li> <li>• Roles &amp; responsibilities of each party within the tuning team, including deliverables</li> <li>• The building tuning plan can be detailed within the commissioning plan. Where the tuning plan or manual is separate to the commissioning plan, it must refer to using the commissioning plan and the commissioning records &amp; results as the baseline data.</li> </ul> <p>The building tuning team must include:</p> <ul style="list-style-type: none"> <li>• The facilities manager</li> <li>• The Independent Commissioning Agent (ICA) or other building owner's representative</li> <li>• The head contractor</li> <li>• The services design professionals</li> </ul> <p>These individuals must be available to address specific tuning issues where required.</p>	Airtightness Commissioning plan	Head Contractor	Pre-Construction
	Building airtightness testing report detailing of test methodology, air flow rates, details of airtightness considerations from schematic design through to construction and statement that the target air permeability from Environmental Performance Targets has been achieved	Head Contractor Airtightness consultant	Construction							
	Signed confirmation from the testing practitioner and main contractor that the results have been sighted.	Head Contractor Airtightness consultant	Construction							
	Building tuning commitment or contract demonstrating that there is a requirement for a building tuning process	Client	Tender Documentation							

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							<p><b>Operations and maintenance information</b> The project team must provide operations and maintenance information for all nominated building systems to the building owner (or designated representative). This means:</p> <ul style="list-style-type: none"> <li>• Appropriate content for all nominated building systems has been developed and provided;</li> <li>• The appropriate user group has access to the information they require to deliver best practice environmental outcomes; and</li> <li>• Guidance on keeping information up to date is provided to the facilities management team in these documents.</li> </ul>	Operations and maintenance information	Head Contractor	Practical Completion
							<p><b>Building log book</b> The project team must develop a building log book to present to the building owner (or designated representative) before practical completion of the project. The building log book must:</p> <ul style="list-style-type: none"> <li>• Be developed in line with CIBSE TM31: Building Log Book Toolkit;</li> <li>• Cover all nominated building systems; and</li> <li>• Include links or references to all relevant operations and maintenance information.</li> </ul>	Building logbook	Client (Building Management Team)	Practical Completion
							<p><b>Building user information</b> Building user information is a source of up-to-date, relevant information for the building user. Building user information must be able to be updated and edited by the facilities management team, or other appropriate stakeholder groups, to ensure it remains current and relevant to users throughout the life of the building. All building user information must be available to the building owner and facilities management team at the time of practical completion.</p>	Building user information.	Sustainability Consultant	Practical Completion
04	Responsible Resource Management	N/A	Minimum Expectation	NA	Complies		<p>The building must provide bins or storage containers to building occupants to enable them to separate their waste. These bins must be labelled and easy to access, and evenly distributed throughout the building. They must also allow for separating the following as a minimum:</p> <ul style="list-style-type: none"> <li>• General waste going to landfill</li> <li>• Recycling streams to be collected by the building's waste collection service, including:                             <ul style="list-style-type: none"> <li>- paper and cardboard</li> <li>- glass</li> <li>- plastic</li> </ul> </li> <li>• One additional waste stream identified by the project team. This may include collecting any of the following waste types: organics, e-waste, batteries etc.</li> </ul> <p>Any other waste streams (excluding those) that are expected to represent more than 5% of total annual operational waste and resources (by volume) must also be included.</p>	<p>Site Plan and/or architectural plans highlighting the location of relevant waste facility areas, demonstrating:</p> <ul style="list-style-type: none"> <li>- Collection of waste streams</li> <li>- Dedicated waste storage area</li> <li>- Access to waste storage area</li> <li>- Layout of equipment and bin storage</li> </ul>	Architect	Schematic Design
							<p>A dedicated area, or areas, for the storage and collection of the applicable waste streams must be provided. The storage area must be sized to accommodate all bins or containers, for all applicable waste streams, for at least one collection cycle. The calculations used to demonstrate that the area provided is adequately sized to handle the recyclable waste streams specified must be based on:</p> <ul style="list-style-type: none"> <li>• Forecasted waste generated by occupants</li> <li>• Collection frequency for each waste stream</li> </ul> <p>The calculations for waste generation rates must be based on figures outlined within third-party best practice guidelines. The storage area(s) must have efficient and safe access by collection vehicles. This includes driveway access to the building, appropriate height clearances, any onsite roads and loading docks, and the storage areas themselves providing safe and easy access for bins to be emptied into collection vehicles.</p>	<p>Calculations used to demonstrate that the dedicated waste storage area provided is adequately sized.</p>	Waste Consultant	Schematic Design
							<p>The storage area must have efficient and safe access by collection vehicles. This includes driveway access to the building, appropriate height clearances, any onsite roads and loading docks, and the storage areas themselves providing safe and easy access for bins to be emptied into collection vehicles.</p>	<p>Details on how the dedicated waste collection areas meet best practice guidelines, in line with third-party best practice guidelines</p>	Waste Consultant	Schematic Design
							<p>A waste specialist and/or contractor must sign-off on the designs to confirm they are adequately sized and located for the safe and convenient storage and collection of the waste streams identified.</p>	Waste consultant sign-off	Waste Consultant	Design Development
5	Responsible Building Management	1	Credit Achievement	Complies	1	0	<p>• <b>Resident User Guide:</b> The developer communicates the benefits of the building's sustainability ambitions to all potential residents of the buildings through use of a Resident User Guide</p> <p>• <b>Building governance:</b> The building management entity is established to have sustainability as a core principle in ongoing management of the building</p> <p>• <b>Responsible handover:</b> Incoming building management is educated on sustainable building management and the ambitions and features of the building</p> <p>• <b>Ongoing management:</b> Sustainability is embedded in ongoing decision-making by building management</p>	Resident user Guide Meeting Minutes Building management Contract	Facilities Manager	Pre-Construction

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05	Responsible Procurement	1	Credit Achievement	NA	0		Risk and opportunity assessment	<p>Prior to appointment of the Head Contractor, the project team must undertake a risk and opportunities assessment of 10 or more key items in the project's supply chain (as selected by the project team) to identify environmental, social and human health risks, and opportunities following ISO 20400 Sustainable Procurement – Guidance. The assessment must be completed by the design team with input from the building owner. At least one of each of the following three areas must be represented in the 10 items:</p> <ul style="list-style-type: none"> <li>• Building Services</li> <li>• Plant &amp; Equipment</li> <li>• Materials</li> </ul> <p>The risk assessment must consider risks and opportunities further down the supply chain, such as in the extraction, manufacture, or transport of key materials. The risk and opportunity assessment must address at least the following issues:</p> <ul style="list-style-type: none"> <li>• Human rights</li> <li>• Labour practices</li> <li>• The environment</li> <li>• Fair operating practices</li> <li>• Consumer issues</li> <li>• Community involvement and development</li> </ul>	<ul style="list-style-type: none"> <li>• Extract from supply chain risk and opportunity assessment</li> <li>• Responsible procurement plan</li> <li>• Extracts from tender documents demonstrating principles and action plan was incorporated</li> <li>• Meeting minutes or governance process documents</li> <li>• Impact and data reporting undertaken through the construction process in partnership with relevant trades and contractors</li> </ul>	Client Sustainability Consultant Architect Head Contractor	Design Development
							Responsible Procurement plan	Client	Design Development		
							Extracts from tender documents demonstrating principles and action plan was incorporated	Client	Tender Documentation		
							Impact and data reporting undertaken through the construction process in partnership	Client	Tender Documentation		
06	Responsible Structure	3	Credit Achievement	NA		3	Good Practice Products	<p>The project must have 50% of all structural components (by cost) meet a Responsible Products Value of at least 10.</p> <p>The structure is defined as load bearing and stability components of a building, including steel, timber, concrete load bearing elements.</p> <p>Values for each product can be calculated by using the Responsible Products Value calculator.</p>	<p>Specifications for required amount of products demonstrating RPV score</p> <p>Quantity surveyor report</p>	Structural Engineer Sustainability Consultant Client	Tender Documentation
							Receipts of products	Head Contractor	Procurement		
09	Responsible Finishes	1	Credit Achievement	NA	1	0	Apartment Pathway (Mandatory)	<p><b>APARTMENTS PATHWAY - LESS STRINGENT REQUIREMENTS</b></p> <ul style="list-style-type: none"> <li>• 40% of finishes in each scheme package (by cost) meet a Responsible Products Value of at least 7.</li> <li>Or</li> <li>• Prescriptive Approach - All carpet, paint (including cabinetry paint finishes) and timber products (including flooring or cabinetry finishes) in all scheme packages meet a Responsible Products Value of at least 7.</li> </ul>	<p>Specifications for required amount of products demonstrating RPV score</p> <p>Quantity surveyor report</p>	Structural Engineer Sustainability Consultant Client	Tender Documentation
							Receipts of products	Head Contractor	Procurement		
		17	Total	0	4	3					
Healthy											

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10	Clean Air	N/A	Minimum Expectation	Complies	Complies	<b>Ventilation system attributes</b> <b>Separation from Pollutants;</b> Non-residential building ventilation systems must be designed to comply with ASHRAE Standard 62.1:2013 or AS 1668:2012 (whichever is greater) regarding minimum separation distances between pollution sources and outdoor air intakes. If using ASHRAE Standard 62.1:2013, compliance is to be demonstrated in accordance with the distances specified in Table 5.5.1 of the Standard. Analytical solutions are also acceptable by following the example provided within Appendix F of ASHRAE Standard 62.1: 2013.  Class 2 and Class 3 building ventilation systems must be designed to comply with the separation distances as outlined in the table below. The table below is based on the Australian Standards 1668.2:2012 (table 3.4) and applied in the same way.	Mechanical drawings for each ventilated space	Building Services Engineers	Design Development
						<b>Apartment Pathway Ventilation System Attributes</b> <b>APARTMENTS PATHWAY</b> Apartment building ventilation systems must be designed to comply with the separation distances as outlined in the table below. The table below is based on the Australian Standards 1668.2:2012 (table 3.4) and applied in the same way. If the kitchen exhaust rate is <200L/s, the separation distance from discharges to intakes, or natural ventilation openings within the same Sole Occupancy Units do not apply as per Table 3.5 in AS 1668.2:2024. For each unit, all wet areas such as laundry and bathroom area have been provided with exhaust fans and ductwork that vents moisture out of the building.	Mechanical drawings for each ventilated space	Building Services Engineers	Design Development
						<b>Provision of outdoor air</b>	Extract from the ventilation system specification for each system	Building Services Engineers	Tender Documentation
							Extracts from the Environmental Management Plan that specify ventilation cleaning	Head Contractor	Tender Documentation
						<b>Comparison to Industry Standards - non-residential buildings pathway:</b> The building must provide a 50% improvement of outdoor air required by AS 1668.2:2012 to each space in the regularly occupied areas. To demonstrate compliance, the HVAC system must be clearly sized to accommodate the increased outdoor air rates. The project must use the design occupancy, where known, rather than the default occupancy when calculating the required rates. The default occupancy is to be determined by the project team – any assumptions made must be justified within the Submission. Where the occupant density is unknown, projects must utilise the occupancy rates prescribed within Table A1 Appendix A of AS 1668.2:2012. Demand controlled ventilation is acceptable for energy efficiency performance.	Extract from the Commissioning Report demonstrating that the HVAC and CO2 monitoring systems are operating as intended. For naturally ventilated areas, this is only relevant where automation systems and the like are included.	Building Services Engineers	Design Development
						<b>Comparison to Industry Standards - Class 2 and Class 3 buildings pathway:</b> The regularly occupied areas must be provided with good access to outdoor air, appropriate for the activities and conditions by using one of the following options: • Where mechanical ventilation is used, the building must provide outdoor air as per AS1668.2:2012 for the default occupancy • Where ventilation is by natural means, the building must meet natural ventilation requirements as per AS1668.4:2012.	Extract from the ventilation system specification for each system		Tender Documentation
						<b>Performance based approach:</b> For this option, the system must be capable of providing enough outdoor air to maintain carbon dioxide (CO2) levels at or less than 800ppm within each space in the regularly occupied areas at all times in the default occupancy period. The system must continuously measure the concentration of CO2 within the breathing zone of each space during occupancy hours. The system must then adjust the amount of outdoor air to each space (up to the maximum design outdoor air quantity) to ensure that CO2 levels are maintained below the stipulated ppm threshold.	Extract from the Commissioning Report demonstrating that the HVAC and CO2 monitoring systems are operating as intended. For naturally ventilated areas, this is only relevant where automation systems and the like are included.	Building Services Engineers	Design Development
						<b>Exhaust or elimination of pollutants.</b> It must be demonstrated that pollutants from printing and photocopying equipment, cooking processes and equipment are limited from the nominated area by either: • Removing the source of pollutants; or • Exhausting the pollutants directly to the outside. For the first option, sources of pollutants, such as printing or photocopy equipment, kitchen stoves or vehicles, must be compliant with minimum emissions standards or not be present within the nominated area. For the second option, specified sources of pollutants shall be exhausted directly to the outside of the project in accordance with a recognised Standard, and/or physically separated from occupants.	Mechanical drawings showing the exhaust systems for the relevant spaces	Building Services Engineers	Design Development
<b>Apartment Pathway</b> <b>APARTMENTS PATHWAY</b> All new and existing ductwork that serves the building must be cleaned prior to occupation in accordance with a recognised Standard. This includes all ductwork in the base building that serves the building from the air handling unit(s) to the supply vents. If no ductwork exists, these requirements are deemed to be met.	Mechanical drawings showing the exhaust systems for the relevant spaces Extract from the Commissioning Report demonstrating that the HVAC and CO2 monitoring systems are operating as intended. For naturally ventilated areas, this is only relevant where automation systems and the like are included.	Building Services Engineers	Design Development						

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11	Light Quality	N/A	Minimum Expectation	Complies	Complies	0	<b>Apartment Pathway</b> <b>APARTMENTS PATHWAY - LESS STRINGENT</b> For units present in the building, all lighting installed must meet the following requirements. <ul style="list-style-type: none"> <li>• Have a Minimum Colour Rendering Index (CRI) 85</li> <li>• Be consistent for the colour selected, demonstrated through a Standard Deviation Colour Matching (SDCM) of 3 or lower.</li> <li>• All luminaire control gear must meet the requirements in IEEE 1789-2015 as either being 'Low Risk' or 'No Observable Effect'</li> </ul>	Lighting Drawings	Building Services Engineers	Tender Documentation
							<b>Apartment Pathway-Performance method 2</b> <b>APARTMENTS PATHWAY</b> Glare from light sources must be limited within the units. All luminaires must not produce unwanted glare and achieve a Unified Glare Rating (UGR) of less than 19 for living, dining, kitchen, bedrooms & bathrooms. For all other areas a UGR of less than 22 is acceptable	Architectural Drawings	Architect	Tender Documentation
							<b>Apartment Pathway Daylight Levels</b> <b>APARTMENTS PATHWAY</b> 80% of apartment units meet 160Lux for 60% of the combined living and bedroom areas with each room achieving daylight for 20% of its area. The remaining 20% of apartment units must meet 160 lux for at least 40% of living and bedroom areas, with each room achieving daylight for 20% of its area. Kitchens are not included in the calculations. Daylight must be calculated using Daylight Autonomy.	UGR Calculations	Head Contractor	Design Development
		2	Credit Achievement	2	2		<b>Apartment Pathway External Glare Control</b> <b>APARTMENTS PATHWAY</b> Glare from sunlight through all viewing façades and skylights must be reduced through a combination of blinds, screens, fixed devices, or other means. Three options are provided for demonstrating compliance with this requirement: a performance method, and two prescriptive methods. A combination of methods can be used to demonstrate compliance to suit different spaces. Class 2 and Class 3 buildings and hospitality buildings must provide room blackout blinds or curtains to all bedrooms. Blinds or curtains are part of a packaged décor, blackout blinds must be offered as standard in units.	Daylight modelling report or manual calculations	Sustainability Consultant	Design Development
12	Acoustic Comfort	N/A	Minimum Expectation	Complies	Complies	0	<b>Acoustic Comfort Strategy</b> <b>APARTMENTS PATHWAY</b> Glare from sunlight through all viewing façades and skylights must be reduced through a combination of blinds, screens, fixed devices, or other means. Three options are provided for demonstrating compliance with this requirement: a performance method, and two prescriptive methods. A combination of methods can be used to demonstrate compliance to suit different spaces. Class 2 and Class 3 buildings and hospitality buildings must provide room blackout blinds or curtains to all bedrooms. Blinds or curtains are part of a packaged décor, blackout blinds must be offered as standard in units.	Glare modelling	Sustainability Consultant	Design Development
							An Acoustic Comfort Strategy must be prepared describing how the building design will deliver acoustic comfort to the building occupants. The following elements must be addressed: <ul style="list-style-type: none"> <li>• Quiet enjoyment of space</li> <li>• Functional use of space</li> <li>• Control of intrusive or high levels of noise</li> <li>• Privacy</li> <li>• Noise transfer</li> <li>• Speech intelligibility</li> </ul> The strategy must be prepared by a qualified acoustic consultant during the design stage and the design solutions described in the strategy must be incorporated into the Contract Documents.	Acoustic Comfort Strategy including: <ul style="list-style-type: none"> <li>• A summary of the Standards, legislation, guidelines, and other requirements that apply to the project</li> <li>• The proposed performance metrics for each of the Acoustic Comfort criteria relevant to the different uses within the building and whether this exceeds minimum legislative or best practice guidelines</li> <li>• Description of how the design solution is intended to achieve the proposed performance metrics</li> </ul>	Acoustic Consultant	Design Development
		2	Credit Achievement	2	2		<b>Apartment Pathway (Mandatory)</b> At least two of the following is met for each unit and regularly occupied common spaces: <ul style="list-style-type: none"> <li>• <b>Maximum Internal Noise Levels:</b> Ambient noise levels are maintained below threshold.</li> <li>• <b>Acoustic Separation:</b> Acoustic separation ensures noise transmission between spaces is minimised.</li> <li>• <b>Impact Noise Transfer:</b> Impact noise transfer is kept at permissible levels.</li> </ul>	Report by a qualified acoustics consultant confirming credit compliance. <ul style="list-style-type: none"> <li>• Extracts from the commissioning report detailing relevant measured noise levels and target noise levels.</li> </ul>	Acoustic Consultant	Design Development
13	Exposure to Toxins	N/A	Minimum Expectation	Complies	Complies	0	<b>Reverberation</b> The reverberation time in the nominated area must be not exceed the maximum for the intended use recommended in AS/NZS2107. This criterion does not apply to residential spaces.	Report by qualified Acoustic Consultant confirming compliance with the credit requirements through on-site testing.	Acoustic Consultant	Practical Completion
							<b>Paints, adhesives, sealants and carpets</b> At least 95% of internally applied paints, adhesives, sealants (by volume) and carpets (by area) must meet stipulated 'Total Volatile Organic Compounds (TVOC) Limits' specified in the Green Star submission guidelines. Compliance can be demonstrated in the following ways: <ul style="list-style-type: none"> <li>• The product(s) are certified under a recognised Product Certification Scheme. The certificate must be current at the time of purchase;</li> <li>• The product(s) are tested in a laboratory; or</li> <li>• There are no paints, adhesives, sealants and carpets in the building at practical completion.</li> </ul>	Extracts from contract specifications for adhesives and sealants	Architect	Tender Documentation
							Either no new engineered wood products are used in the building, or at least 95% (by area) of all engineered wood products meet specified formaldehyde emission limits in the ESD Specification.	Product certificates that demonstrate certification under a recognised product certification scheme or recognised standard	Head Contractor	Procurement
								Invoices and proof of purchase to demonstrate costs of compliant materials	Head Contractor	Procurement
						Bill of Quantities from Quantity Surveyor or Cost planner, demonstrating material costs	Quantity Surveyor	Practical Completion		
						Specifications that demonstrate emission levels or formaldehyde contents	Architect	Tender Documentation		

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						<b>Engineered wood products</b> Where there are engineered wood products, compliance to emission limits can be demonstrated in two ways: • The product(s) are certified under a recognised Product Certification Scheme. The certificate must be current at the time of purchase; and/or	Safety Data Sheets that demonstrate the compliant emission levels or formaldehyde content Product VOC test certificates that demonstrate emission levels or formaldehyde contents	Head Contractor Head Contractor	Procurement Procurement
						<b>Banned and highly toxic materials</b> A comprehensive hazardous materials survey must be carried out on any existing buildings or structures on the project site, in accordance with the relevant Environmental and Work Health and Safety (WHS) legislation. Where the survey identified asbestos, lead, or PCBs in any existing buildings or structures, the	Hazardous materials survey Hazardous materials disposal confirmation	Head Contractor Head Contractor	Pre-Construction Pre-Construction
						<b>Views</b> At least 60% of regularly occupied areas must have a clear line of sight to a high quality internal or external view. All floor areas within 8m from a compliant view meet this credit criterion.  A high-quality internal view is defined as a view towards an area that is landscaped or contains a water feature, or an atrium. A landscaped area must contain either high plant density, xeriscape gardens or arid climate landscaping. The landscaping may be horizontal or vertical.	Drawings showing access to views and/or line-of-site showing that no obstructions exist	Sustainability Consultant	Design Development
						<b>Plants &amp; Nature Inspired Design</b> <b>Plants:</b> Indoor plants must be provided in the nominated spaces. One or more plants in pots with a soil surface area totalling at least 500cm <sup>2</sup> for every 15m <sup>2</sup> of the primary spaces is required. An ongoing maintenance plan must be established to ensure plant health is maintained. The contract must include: • A 2-year contract with a plant maintenance contractor to enact the plan; • A schedule of plants within the nominated space; • Service intervals; • Policy regarding the maintenance of soil moisture, pH and nutrients; • Diseased plant replacement policy; and • Cleaning requirements and commitments.  <b>Nature-inspire design:</b> Five additional nature-inspired design interventions must be provided in alignment with the following principles: • Elements that provide multiple natural sensory experiences • Elements that reflect natural and cultural patterns and forms • Using natural materials • Large scale and holistically incorporated natural motifs and art Project teams must provide a narrative against a set of design principles to show how the project's ambition for nature inspired design has been embedded from design concept stage.	As built drawings showing the location of plants in the space  Extracts from the ongoing management plan for plants	Architect Landscape Architect  Architect Landscape Architect	Design Development  Design Development
						<b>Interaction with Nature</b> Occupants can interact with nature either inside the building, or externally through a green facade (or wall) or garden. At least 5% of the building's regularly occupied areas or land within the site boundary (whichever is greater) must be planted area (either vertical or horizontal). The allocated area must be accessible and have the necessary infrastructure to allow the activity to occur (for example water source/ taps for irrigation, storage area for tools and equipment).	Evidence of how occupants can interact with nature (e.g., site plans showing green roofs)	Architect Landscape Architect	Design Development
15	Connection to Nature	1	Credit Achievement	1	1				

Greenstar Homes Healthy

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1	Air Quality	0	Minimum Expectation	Complies	NA	Air	<p>The home must meet both of the following requirements:</p> <ul style="list-style-type: none"> <li>• Mechanical Ventilation</li> <li>• Filtration and Pollutant Reduction</li> </ul> <p><b>Mechanical Ventilation</b> <b>Continuous ventilation</b> The home must be installed with a continuous balanced and distributed supply and exhaust with heat recovery (MVHR). All living and sleeping areas must be shown to be continuously ventilated. MVHR systems must be separate from air-conditioning systems. Information on the importance of continuous ventilation must be included in the Home User Guide. Mechanical ventilation system design and installation All mechanical ventilation systems providing supply air must have balanced supply and exhaust configurations designed by a suitably qualified mechanical professional and commissioned as per the manufacturers specifications. Mechanical systems must be separate from air-conditioning systems and verified in operation by ATTMA (Air Tightness Testing &amp; Measurement Association) Registered Air Tightness Tester. MVHR system efficiency to meet ISO16494:2014 (Heat Recovery Ventilators and Energy Recovery Ventilators –Method of test for performance) and have summer bypass mode. All mechanical ventilation ducting must be insulated or be installed within the conditioned envelope. All ductwork that serves the home must be cleaned prior to occupation in accordance with recognised Standards. If no ductwork exists, these requirements are deemed to be met. In climate zones 1 and 2, an auxiliary system must be installed to manage humidity. Provision of outdoor air The home must be designed to meet ASHRAE 62.2:2012 (Mechanical ventilation in buildings). <b>Filtration and Pollutant Reduction</b> Pollutant reduction system must be designed to comply with ASHRAE Standard 62.2-2019 (Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings) regarding minimum separation distances between pollution sources and outdoor air intakes.</p>	Evidence as per above credit requirements	Architect Landscape Architect	Design Development
2	Moisture Management	0	Minimum Expectation	Complies	NA		<p>This home must meet all four of the following requirements:</p> <ul style="list-style-type: none"> <li>• Weather Management</li> <li>• Vapour Management</li> <li>• Drainage Strategy</li> <li>• Thermal Bridging</li> </ul>			
3	Light Quality	0	Minimum Expectation	Complies	NA		<p>Lighting All lighting must be LED and must meet all the following requirements:</p> <ul style="list-style-type: none"> <li>• Have a Minimum Colour Rendering Index (CRI) 85</li> <li>• Be consistent for the colour selected, demonstrated through a Standard Deviation Colour Matching (SDCM) of 3 or lower.</li> <li>• All luminaires must not produce unwanted glare and achieve a Unified Glare Rating (UGR) of less than 19 for living, dining, kitchen, bedrooms &amp; bathrooms. For all other areas a UGR of less than 22 is acceptable. Information can be found on the manufacturers datasheets or by requesting it.</li> <li>• All luminaire control gear must meet the requirements in IEEE 1789-2015 as either being "Low Risk" or "No Observable Effect"</li> </ul> <p>Landscaping fixtures, decorative fixtures and LED fixtures installed in carports are excluded from the requirements of this credit.</p>			
4	Material Toxicity	0	Minimum Expectation	Complies	NA		<p>Requirements The home must meet both of the following requirements:</p> <ul style="list-style-type: none"> <li>• Paints, Adhesives, Sealants, and Carpets - TVOC limits</li> <li>• Engineered Wood Products - Formaldehyde Levels</li> </ul>			
<b>Resilient</b>										

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16	Climate Change Resilience	N/A	Minimum Expectation	Complies	Complies	Climate Change Pre-Screening Checklist	Project team members must consider potential impacts from climate change when completing the checklist in the submission form including, but not limited to: <ul style="list-style-type: none"> <li>• Direct damage or failure of project components</li> <li>• Accelerated deterioration of project components or reduced design life</li> <li>• Reduced operating capacity</li> <li>• Climate hazard impacts to surrounding areas (e.g., impacting access and egress)</li> <li>• Impacts to the health and wellbeing of building occupants and other relevant stakeholders</li> <li>• Indirect risks from impacts to other interdependent systems and services (e.g., transport networks, power, water, telecommunications)</li> </ul> Both historic and future data must be used when completing the checklist. All sections must be completed. The Minimum Expectation is achieved on completion of the checklist and doesn't require identified risks to be treated. The checklist must be signed off by a member of the project leadership team and shared with key project stakeholders, including the client/building owner. If the Credit Achievement for this credit is met, requirements of this assessment are considered to have been met.	Climate change risk assessment	Sustainability Consultant	Schematic Design
		1		1	1		A suitably qualified professional must undertake a climate change risk and adaptation assessment and author a report. The suitably qualified professional must: <ul style="list-style-type: none"> <li>• Perform the assessment using the information from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report Representative Concentration Pathway 8.5 (RCP 8.5) or most recently published version</li> <li>• Perform the assessment using two timescales that are relevant to the project's anticipated lifespan: one medium-term timescale between 2040 to 2050 one long-term timescale between 2070 to 2090</li> <li>• Identify the primary and secondary climate change variables from Table 2 in AS5334:2013 Climate change adaptation for settlements and infrastructure relevant to the project and each risk</li> <li>• Define and include the consequence and likelihood tables and risk matrix used to assess climate risks</li> <li>• Assess risks in consultation with multidisciplinary representatives from within the project team and a selection of relevant external stakeholders</li> <li>• Develop a register of risks to the building and surrounding infrastructure, and provide treatment options for the identified risks</li> <li>• Communicate the assessment results to the leads of all design disciplines</li> </ul> The project team must ensure risks are addressed as follows: <ul style="list-style-type: none"> <li>• All risks rated as 'High' must be addressed through specific design responses</li> <li>• All risks rated as 'Medium' must be addressed through design or future operational responses</li> <li>• Regardless of risk rating, at least two risks identified in the assessment must be addressed by specific design responses.</li> </ul>	Climate change risk assessment	Sustainability Consultant	Schematic Design
							Risk assessment criteria, including the likelihood and consequence tables, risk matrix, RCP and timescale, and any assumptions significant in the development of the assessment	Sustainability Consultant	Schematic Design	
							Details of the adaptation responses	Sustainability Consultant	Schematic Design	
							Evidence the assessment was communicated to design leads	Sustainability Consultant	Schematic Design	
19	Heat Resilience	1	Credit Achievement	1	1	Community resilience plan	At least 75% of the whole site area comprises of one or a combination of strategies that reduce the heat island effect. The strategies that can be used to reduce the heat island are: <ul style="list-style-type: none"> <li>• Vegetation</li> <li>• Green roofs</li> <li>• Roofing materials, including shading structures, having the following:               <ul style="list-style-type: none"> <li>– For roof pitched &lt;15 – a three-year SRI of minimum 64</li> <li>– For roof pitched &gt;15 – a three-year SRI of minimum 34</li> </ul> </li> <li>• Unshaded hard paving elements with a three-year SRI of minimum 24 or an initial SRI of minimum 34</li> </ul>	Site Plan highlighting all relevant areas as referenced within the area schedule	Architect	Design Development
							Area Schedule listing the areas of each of the relevant site elements and where relevant, the SRI values and referencing plan drawings for the site	Architect	Design Development	
							Supplier Documentation material data sheet for compliant roofing and hardscape materials	Head Contractor	Procurement	
Greenstar Homes -										
1	Water Use	0	Minimum Expectation	0	NA	Pathway A: Home Use	The home must meet one of the following requirements: <ul style="list-style-type: none"> <li>• Pathway A: Home Use</li> <li>• Pathway B: Community Level</li> </ul> <b>Pathway A: Home Use</b> Use the Green Star Homes Water Use Calculator to demonstrate the home achieves a 40% reduction in water use when compared to a reference home using a combination of water efficient fixtures, appliances and rainwater storage. The Water Use Calculator will determine the tank size from selected fixtures, appliances and occupants. The calculator will be populated with the below default			
2	Heat Resilience	0	Minimum Expectation	0	NA	Site Resilience	The home must meet the following requirement: <ul style="list-style-type: none"> <li>• Site Resilience</li> </ul> The home demonstrates that at least 50% of the site area in plan view, comprises of one or combination of the following: <ul style="list-style-type: none"> <li>• Photovoltaic panels</li> <li>• Vegetation (for example garden - made up of lawn, shrubs, and trees)</li> <li>• The roofing material, including shade structures having the following solar reflective indexes. This is based on the pitch of the roof:               <ul style="list-style-type: none"> <li>– For roof pitched &lt;15° - a three-year SRI of minimum 64</li> </ul> </li> </ul>			

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3	Resilience Essentials	0	Minimum Expectation	0	NA	Checklist	<p>The home must meet the following requirement:</p> <ul style="list-style-type: none"> <li>Resilience Checklist</li> <li>Resilience Checklist</li> </ul> <p>Project teams must complete the Resilience Checklist, demonstrating compliance with mandatory measures and providing information on optional (non-mandatory) measures. The Checklist has requirements to be addressed both at design and construction (once a site has been selected). The Resilience Checklist outlines how the home has been designed to respond to climate changes risks in relation to the following:</p> <ul style="list-style-type: none"> <li>Extreme Heat</li> </ul>			
		8	Total	2	2	0				
<b>Positive</b>										
21	Upfront Carbon Emissions	N/A	Minimum Expectation	Complies	Complies	Reducing upfront carbon emissions	<p>The building's upfront carbon emissions are at least 10% less than those of a reference building. The building's upfront carbon emissions reductions must occur through good design and material selection. The reduction targets do not include demolition works.</p>	<p>Upfront Carbon Emissions calculator (if pathway used)</p>	Sustainability Consultant	Design Development
							<p>Bill of quantities showing materials used.</p>	Quantity Surveyor	Design Development	
							<p>Standard practice reference building documentation: - Signed declarations from the principal architect and engineer for the project, confirming that the reference building was constructed in accordance with the specific requirements and guidance of this credit. - Also confirming the reference building design, technologies and construction are true representation of contemporary practice for the type and function of the project.</p>	Architect	Design Development	
							<p>Actual reference building documentation: - Signed declarations from the principal architect and engineer for the project, confirming and demonstrating how the reference building meets the specific guidance above.</p>	Architect	Design Development	
							<p>The building's upfront carbon emissions are <b>at least 20% less than those of a reference building</b>. The building's upfront carbon emissions reductions must occur through good design and material selection. The reduction targets do not include demolition works (i.e., demolition works are not included in the reference or proposed building). Carbon offsets purchased against the building's upfront carbon emissions from construction cannot be used to show compliance against the 20% reduction.</p>	<p>Bill of quantities showing materials used.</p>	Quantity Surveyor	Design Development
<p>Carbon Neutral Products: Products certified under the Climate Active Carbon Neutral Standard can contribute toward compliance. If a project seeks to use a different Standard, a Technical Question must be submitted to the GBCA justifying its equivalency. Additional schemes will be added once they become available and added as a FAQ on the GBCA's website.</p>	Sustainability Consultant	Design Development								
<p>Environmental Product Declarations (EPDs): EPDs used for the Responsible Products credits may be used to demonstrate compliance. If a product with an EPD is used that is not claimed in the Responsible Products credits, the complying EPD and proof of use of the product must be included in the submission.</p>	Architect Sustainability Consultant	Design Development								
<p>Low-carbon or carbon neutral products and design: All claims of carbon in products must be accompanied by 3rd party verified data, such as in Environmental Product Declarations (EPD). The following can be used to contribute towards compliance with the credit:</p>	Architect Sustainability Consultant	Design Development								
		3	Credit Achievement	0	3	Calculating upfront carbon emissions	<p>To demonstrate compliance, project teams can either:</p> <ul style="list-style-type: none"> <li>Model the proposed and reference buildings following the methodology of the Life Cycle Impacts credit for modules A1 to A5</li> <li>Complete the Upfront Carbon Emissions calculator. The GBCA's Upfront Carbon Emissions calculator uses Modules A1 to A3 to calculate compliance.</li> </ul> <p>Projects must document a reduction in upfront carbon according to the materials and products in the scope.</p>	<p>Documentation requirements as per above if Upfront Carbon Emissions calculator used, otherwise, an LCA Consultant to be engaged.</p>	Sustainability Consultant	Design Development

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						<p><b>Offsetting demolition works pathway</b></p> <p>Where an existing building less than 30 years old has been fully or partly demolished for construction, an embodied carbon calculation must be done for the demolished portion and these emissions offset.</p> <p>Where the existing building is between 30 to 50 years old, the contribution must be calculated and discounted at 10% for every two additional years past year 30.</p> <p>Beyond 50 years, there are no requirements.</p>	Upfront Carbon Emissions calculator (if pathway used)	Sustainability Consultant	Design Development	
						<p><b>Calculating demolition emissions</b></p> <p>To demonstrate compliance, project teams can either:</p> <ul style="list-style-type: none"> <li>Model the existing building following the methodology of the Life Cycle Impacts credit in the Climate change impact category for modules A1 to A5</li> <li>Complete the 'Existing building' section of the Upfront Carbon Emissions calculator.</li> </ul>	Offsets: Residual upfront carbon emissions beyond the Credit Achievement reduction target, and carbon emissions from demolition works, may be offset through verified offset schemes. Acceptable offset schemes are listed in the Climate positive buildings and our net zero ambitions document.	Head Contractor	Practical Completion	
						<p><b>Reference building pathway:</b> The building uses 10% less energy compared to a reference building.</p>	Energy modelling report Extracts from specifications Extracts from commissioning reports As built drawings of the façade Evidence of renewable energy generation on-site Schedule identifying all on-site storage systems installed in the building	Sustainability Consultant	Design Development	
						<p><b>NABERS commitment agreement pathway:</b> NABERS energy rating commitment agreement of 5.5 Stars</p>	Signed copy of the NABERS Energy Commitment Agreement Independent Design Review report outlining the results to the Energy Efficiency Review of the project GreenPower or other off-site renewable contracts	Sustainability Consultant	Design Development	
		N/A	Minimum Expectation	Complies	Complies	<p><b>Energy Use</b></p>	<p><b>Residential pathway:</b> The building achieves an average NatHERS rating of 6.5 stars and a minimum rating of 5 stars WELS rating of 3 stars for showers, 4 stars for kitchen taps and 5 stars for hand wash basins taps are specified. A pool cover with a minimum R-value of 0.075 for external pools or 0.05 for internal pools is installed where heated pools are provided. The building complies with NCC Parts J3 to J8. No state amendments or exclusions are allowed.</p>	<p>NatHERS certification summary report Schedule demonstrating that all fittings achieve the required WELS rating Documentation showing the specification and R-value of the pool cover Section J3 to J8 compliance reports</p>	Sustainability Consultant	Design Development
						<p><b>APARTMENTS PATHWAY</b></p> <p>NatHERS Ratings: For projects subject to NCC2022 Section J, the building has a weighted-area average of NatHERS 7.5 stars and meets at least NatHERS 6 stars for each sole-occupancy unit.</p>	NatHERS certification summary report Schedule demonstrating that all fittings achieve the required WELS rating Documentation showing the specification and R-value of the pool cover Section J3 to J8 compliance reports	Sustainability Consultant	Design Development	
						<p><b>1. Domestic Hot Water:</b></p> <ul style="list-style-type: none"> <li>All showers have a minimum WELS rating of 4 Stars with a maximum flow rate of 7.5L/min.</li> <li>All hot water pipes outside of the sole-occupancy units are insulated with a minimum R-value of 2.0.</li> <li>All hot water pipes inside sole-occupancy units are insulated with a minimum R-value of 0.5.</li> </ul>	Schedule demonstrating that all fittings achieve the required WELS rating	Building Services Engineers	Design Development	
						<p><b>2. Domestic Hot Water Generation:</b> The building provides one or a combination of:</p> <ul style="list-style-type: none"> <li>A sole thermal heating system is provided, or heat is recovered from another process (for example chiller heat recovery) or a combination of both, which contributes at least 30% of the annual thermal energy requirement for water heating</li> <li>The primary non-renewable heat source for domestic hot water is an electric heat pump with a minimum COP of 3.0 at 20C ambient and 65C leaving temperature</li> </ul>	Schedule demonstrating that all fittings achieve the required WELS rating	Building Services Engineers	Design Development	
						<p><b>APARTMENTS PATHWAY</b></p> <p>Energy Efficient Appliances : Where units are provided with appliances the following minimum energy efficiencies are required:</p> <ul style="list-style-type: none"> <li>Fridge - 4.5-stars</li> <li>Washing Machine - 4.5-stars</li> <li>Dishwasher - 4.0 stars</li> <li>Dryer - 6.0-stars</li> </ul>	Schedule demonstrating that all fittings achieve the required WELS rating	Building Services Engineers	Design Development	

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22	Energy Use	3	Credit Achievement	3	3	Energy Use	<p><b>3. Heating &amp; Cooling of Sole Occupancy Units:</b> For cooling, the building provides one or a combination of the following:</p> <ul style="list-style-type: none"> <li>• DX Split Systems: a minimum 3.5 StCESEER Cooling StCERating (mixed zone)</li> <li>• Centralised Condenser Water System: water cooled packaged units with a minimum cooling EER of 3.5 AND the condenser water system exceeds energy efficiency requirements of NCC Section J5.7 and J5.12 by at least 10%</li> <li>• Central Chilled Water System: the chiller and chilled water systems exceed energy efficiency requirements of NCC Section J5.7 and J5.10 by at least 10%. If a cooling tower is installed, then this must exceed energy efficiency requirements of NCC Section J5.12 by at least 10%</li> <li>• No refrigerant-based cooling is provided</li> </ul> <p>For heating, the building provides one or a combination of the following:</p> <ul style="list-style-type: none"> <li>• DX Split Systems: 3 StCESEER Heating StCERating (mixed zone)</li> <li>• Centralised Condenser Water System: water cooled package units with a minimum heating EER of 4.0 AND the condenser water pump system exceeds energy efficiency requirements of Section J5.7 by at least 10%</li> <li>• Central Heating Hot Water System: the heat source is a heat pump with a with a minimum COP of 4.0 at 10 C ambient outside air temperature AND the heating hot water pumping system exceeds energy efficiency requirements of NCC Section J5.7 by at least 10%</li> <li>• Electric heater: 10% better than Section J5.9 requirements</li> <li>• No electric or combustion-based heating is provided</li> </ul>	<p>Schedule identifying all air-conditioners installed in the building, their capacities and the manufacturer and model of each. Manufacturers' documentation or information from <a href="http://www.energyrating.gov.au">www.energyrating.gov.au</a> confirming the energy stCERating applicable to each air-conditioner or heater.</p>	Building Services Engineers	Design Development
							<p><b>4. Clothes Drying:</b> 95% of dwellings contain both:</p> <ul style="list-style-type: none"> <li>• External clothes drying facility</li> <li>• Either no available space for a clothes dryer OR a heat pump clothes dryer with auto-sensing feature</li> </ul>	<ul style="list-style-type: none"> <li>• As built drawings demonstrating provision of external drying facilities</li> <li>• Documentation demonstrating the specification of the dryer installed</li> </ul>	Building Services Engineers / Architect	Design Development
							<p><b>5. Ceiling fans:</b> are installed in all bedrooms and living rooms and comply with the requirements of NCC Section J0.3.</p>	<ul style="list-style-type: none"> <li>• As built drawings demonstrating that ceiling fans have been provided to all living rooms and bedrooms</li> <li>• Schedule identifying all ceiling fans installed the in the building, and the manufacturer and model of each</li> </ul>	Building Services Engineers / Architect	Design Development
							<p><b>6. Car Parking:</b> The building complies with one of the following:</p> <ul style="list-style-type: none"> <li>• No undercover parking is provided</li> <li>• 75% of undercover parking is naturally ventilated with no mechanical ventilation systems</li> <li>• Undercover parking is limited to 1 space per 5 sole-occupancy units</li> </ul> <p>Where undercover parking is provided, lighting control linked to occupancy sensors must be installed, with minimum lighting levels provided for safety and security purposes.</p>	<ul style="list-style-type: none"> <li>• As built drawings demonstrating that no undercover parking is provided</li> <li>• Extract from the Commissioning Report demonstrating enclosed parking areas are naturally ventilated.</li> <li>• Documentation showing that no more than 1 space per 5 sole-occupancy units is provided</li> <li>• Documentation showing location and CO sensors and Variable Speed Drive on all fans</li> </ul>	Building Services Engineers / Traffic Consultant	Design Development
							<p><b>7. Vertical Transportation:</b> The energy associated with lift machinery or other vertical transportation complies with all the following:</p> <ul style="list-style-type: none"> <li>• The minimum lift energy efficiency is class A or B in accordance with ISO 25745-2</li> <li>• The lift idle and standby energy performance level is 1 in accordance with ISO 25745-2.</li> <li>• The minimum escalator energy performance is class A+ to A+++ in accordance with ISO 25745-3. Requirements must be met for all relevant systems where present.</li> </ul>	<p>Schedule identifying all vertical transportation systems installed in the building, and the manufacturer and model of each. Documentation showing the energy efficiency class and idle and standby energy performance level in accordance with ISO 25745-2 for all installed lifts (where applicable). Documentation showing the energy performance class in accordance with ISO 25745-3 for all installed escalators (where applicable). Extract(s) from the commissioning report demonstrating (through supporting evidence) that the vertical transportation systems have been commissioned and operate as intended by the design.</p>	Building Services Engineers / Head Contractor	Design Development
							<p><b>8. Lift Lobbies:</b> Lift lobbies and hallways (excluding main entrance lobby to the building) are either:</p> <ul style="list-style-type: none"> <li>• Naturally ventilated</li> <li>• Supply / exhaust air only with no heating or cooling (A/C or tempered)</li> </ul>	<p>As built drawings for each naturally ventilated space showing openings, with dimensions clearly indicated, and ventilation inlets and outlets. Documentation showing supply / exhaust air only with no heating or cooling</p>	Building Services Engineers	Design Development
							<p><b>9. PV Systems:</b> A minimum of 500kWh of annual electricity generation per dwelling is provided by an on-site solar PV system.</p>	<p>Installation drawings and specifications. Calculations demonstrating annual energy generation.</p>	Building Services Engineers	Design Development

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23	Energy Source	N/A	Minimum Expectation	Complies	Complies	Zero Carbon Action Plan	The project team must develop a Zero Carbon Action Plan for the building. The plan must be signed off by the building owner and included in any operational documents for the building. The Zero Carbon Action Plan must include a target date by when the building is expected to operate as net zero carbon. The Zero Carbon Action Plan must cover all energy consumption, procurement, and generation and cannot rely on procuring renewable fuels as its only solution. It must also include infrastructure provided for tenants or future occupants such as gas installations for cooking.	Zero Carbon Action Plan with supporting evidence	Sustainability Consultant	Design Development
		3	Credit Achievement	3	3	Renewable Electricity	All electricity under the control of the building owner or operator must be accounted for and sourced from renewables. Electricity use for tenant loads is excluded from this credit. Both on-site and off-site renewables are acceptable. Where the project team claims the credit through off-site renewables, the building owner must sign a renewable energy contract. The shortest contract length is: <ul style="list-style-type: none"> <li>• Five years</li> <li>• Where the building is owned and managed by an entity that has signed to the Global Commitment for Net Zero Carbon Buildings managed by WorldGBC, the shortest contract length is three years.</li> </ul> Other commitments may be acceptable through a Technical Question. The contract can be part of a corporate power purchasing agreement for a building portfolio.	Signed PPA including extracts on the length of contract	Client	Operation
						Apartments Pathway (Mandatory)	In conjunction with the Minimum Expectation: <ul style="list-style-type: none"> <li>• Renewable Electricity: 100% of the building's common area electricity comes from renewable electricity.</li> </ul>	Signed PPA including extracts on the length of contract	Client	Operation
		3	Exceptional Performance	3	3	Renewable Energy	All energy under the control of the building owner/operator and all non-electricity energy provided for use in the building must be accounted for and sourced from renewables. Fossil fuels cannot be used on site for any domestic hot water, space heating or cooking under any circumstances regardless of base build or tenant use. Fossil fuels for industrial processes are excluded from the assessment. Any fossil fuel use by power generator equipment must be less than 1% of the total building energy consumption and be offset for the full five years of operation. Both on-site and off-site renewables are acceptable.	Evidence that the PPA or on-site generation covers 100% of electricity or energy	Client	Operation
						Apartments Pathway (Mandatory)	In conjunction with the Credit Achievement: <ul style="list-style-type: none"> <li>• Renewable Electricity Mechanism: The building owner actively assist owners and/or tenants to procure renewable electricity.</li> <li>• Engagement Activities: The building owner or management team engages with residents on reducing energy use.</li> </ul>	Evidence that the PPA or on-site generation covers 100% of electricity or energy	Client	Operation
24	Other Carbon Emissions	2	Credit Achievement	NA	2	Other Carbon Emissions - Pathways	The project must comply with <u>one</u> of the following criteria: <ul style="list-style-type: none"> <li>• Eliminating Refrigerants</li> <li>• Offsetting Refrigerants</li> </ul> All refrigerants from building systems or domestic appliances provided by the building must be captured in the credit. This includes where fridges or freezers are provided as part of a fitout package in a residential setting.	Online Submission	Sustainability Consultant	Practical Completion
						Eliminating refrigerants	High-GWP refrigerants must be eliminated from the building. The use of refrigerants with a GWP of 10 or less is considered to comply with the credit. Natural refrigerants in most cases comply with this criterion. OR;	Confirmation that refrigerants have been eliminated from the building along with supporting documentation (e.g., mechanical as built drawings)		
						Offsetting refrigerants	100% of carbon emissions from refrigerants must be offset. Carbon emissions are calculated by multiplying the initial refrigerant charge by its Global Warming Potential (GWP) for each type of refrigerant present in the building and adding the emissions together.	Calculations showing the total refrigerant charge to be offset	Building Services Engineers	Design Development
		N/A	Minimum Expectation	NA	Complies	Reducing Water Use	The building uses 15% less potable water compared to a reference building. Class 2 and Class 3 buildings use 10% less potable water compared to a reference building.	Water Use Calculator and supporting evidence	Sustainability Consultant	Practical Completion
						APARTMENTS PATHWAY Reducing Water Use The residential building uses 30% less potable water compared to a reference building.	Water Use Calculator	Sustainability Consultant	Design Development	
							WELS certificates	Architect	Design Development	

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25	Water Use	3	Credit Achievement	Minimum Expectation	3		Apartment Pathway		Manufacturer's data	Head Contractor	Procurement
									Drawing(s) for each typical floor showing isolation valves for floor-by-floor testing of the fire sprinkler system, and drawings of the water storage and re-use system(s)	Building Services Engineers	Design Development
									Drawing(s) clearly showing the location of all heat rejection equipment installed on the project	Building Services Engineers	Design Development
									Drawings showing the landscape design and the irrigation system, listing the name, location, and plant species zone as it appears in the calculator	Landscape Consultant	Design Development
									Manufacturer's information showing that the application efficiency for the landscape irrigation system	Head Contractor	Procurement
									Manufacturer's information including backwash volume and frequency of filter cleaning	Head Contractor	Procurement
									Drawing(s) of process cooling water usage loops	Building Services Engineers	Design Development
									Drawings and specifications of grey water infrastructure	Building Services Engineers	Design Development
							Recycled Water Infrastructure	The building must have infrastructure for recycled water in a district or location where local council or water authorities (or similar) have planned for installation of recycled water infrastructure.	Drawings and specifications of third-pipewater infrastructure	Building Services Engineers	Design Development
							Apartment Pathway	<b>APARTMENTS PATHWAY</b> Recycled Water Infrastructure The building must have infrastructure for recycled water in a district or location where local council or water authorities (or similar) have planned for installation of recycled water infrastructure.	Drawings and specifications of third-pipewater infrastructure	Building Services Engineers	Design Development
<b>Greenstar Homes Positive</b>											
1	Thermal Performance	0	Minimum Expectation	Complies	NA		NatHERS Rating	NatHERS Ratings: For projects subject to NCC2022 Section J, the building has a weighted-area average of NatHERS 7.5 stars and meets at least NatHERS 6 stars for each sole-occupancy unit.			
2	Window System	0	Minimum Expectation	Complies	NA		Window System	<b>Window System - Greenstar Homes only</b> Double Glazing - All windows must be factory built double glazed IGU (Insulated Glass Units). Window frames must be one of the following: • Thermally broken aluminium • UPVC • Timber • Timber with aluminium cladding These requirements also apply to glass door systems such as sliding doors and skylights.			

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3	Home User Guide	0	Minimum Expectation	Complies	NA	Building User Guide	<p>The Home User Guide must be produced and provided to the owner as part of a handover pack. The Guide must be provided in a digital format, which can be a PDF, website, mobile application or similar that can be updated if required. A hard copy of the Home User Guide can be provided in addition to the digital version.</p> <ul style="list-style-type: none"> <li>Information about the benefits of how the home has been designed and constructed to be: <ul style="list-style-type: none"> <li>Healthy</li> <li>Resilient</li> <li>Energy efficient</li> <li>Fossil fuel free</li> <li>Powered by renewables</li> </ul> </li> <li>Operations and maintenance requirements related to the installed systems and features, such as: <ul style="list-style-type: none"> <li>ventilation systems including guidance on change of filters to maintain optimal performance</li> <li>water tank maintenance</li> <li>hot water systems</li> <li>PV operations</li> <li>provisions for batteries and EV charging</li> </ul> </li> <li>Best usage patterns to maintain the efficiency of home, including practical tips for electricity and water use in appliances, including optimal heating and cooling temperatures</li> <li>Resources or recommendations on sustainable living e.g., waste management, landscaping with native vegetation, food growing, managing water, sustainable transport</li> </ul>			
4	Airtightness	0	Minimum Expectation	Complies	NA	Air Permeability Performance	<p>Air Permeability Performance: Zone 6 - <math>\leq 5m^3/hrm^2@50Pa</math></p> <p>The home must be designed, constructed, and tested to achieve air permeability performance as listed in the table below, when tested @50Pa using a blower door test.</p> <p>Testing to be conducted as per AS/NZS ISO 9972:2015 - Thermal performance of buildings - Determination of air permeability of buildings - Fan pressurization method. Method 1 - Building in Use.</p> <p>Leakage rates to be confirmed under both positive and negative pressures. Both results must meet the air tightness threshold.</p> <p>Testing must be carried out by an ATTMA Registered Air Tightness Tester. ATTMA Registered Certificate of Air Permeability Test must be provided as demonstration of compliance, and results of testing be filed with ATTMA Lodgement (a secure and private database of Australian air tightness results).</p>			
5	Hot Water	0	Minimum Expectation	Complies	NA	DHW Unit	<p>The home must meet either of the following requirements:</p> <ul style="list-style-type: none"> <li>Pathway A: Electric Heat Pump</li> <li>Pathway B: Solar Electric Boosted Systems</li> </ul> <p>Pathway A: Electric Heat Pump</p> <p>The minimum annual energy savings must be <math>\geq 60\%</math> in accordance with AS/NZS 4234. Products eligible for Victorian Energy Efficiency Certificates (VEEC) under the Victorian Energy Upgrades (VEU) program for heat pump water heaters under zone 4 and zone 5 are deemed to comply with the requirements of the credit.</p> <p>The hot water system must be designed with no connection to any gas infrastructure.</p> <p>Pathway B: Solar Electric Boosted Systems</p> <p>The minimum annual energy savings must be <math>\geq 60\%</math> in accordance with AS/NZS 4234. Products eligible for Victorian Energy Efficiency Certificates (VEEC) under the Victorian Energy Upgrades (VEU) program for heat pump water heaters under zone 4 and zone 5 are deemed to comply with the requirements of the credit.</p> <p>The hot water system must be designed with no connection to any gas infrastructure.</p>			

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6	Energy Efficiency Appliances	0	Minimum Expectation	Complies	NA	Fixtures and systems	<p>The home must meet all three of the following requirements:</p> <ul style="list-style-type: none"> <li>• Fossil Fuel Free - All electric</li> <li>• Energy Efficient Ratings <ul style="list-style-type: none"> <li>Refrigerator 4.5 star Energy rating</li> <li>Washing machine 4.5 star Energy rating</li> <li>Dishwasher 4.0 star Energy rating</li> <li>Dryer 6 star Energy rating</li> <li>Cooktop All electric</li> <li>Oven All electric</li> </ul> </li> <li>• Air-Conditioning Systems <ul style="list-style-type: none"> <li>Project team must meet the requirements depending on the type of heating and cooling systems installed.</li> <li>The standard recognises the following systems: <ul style="list-style-type: none"> <li>• Wall Hung Single Split Systems or Multi-Split Systems</li> <li>• Ducted Systems J283</li> </ul> </li> </ul> </li> </ul>			
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7	Renewable Energy			Complies	NA		<p>The home must meet one of the following requirements:</p> <ul style="list-style-type: none"> <li>• Pathway A: Prescriptive Sizing Up to 150 m<sup>2</sup> 5.5 150 m<sup>2</sup> – 250 m<sup>2</sup> 7.5 250 m<sup>2</sup> – 350 m<sup>2</sup> 10</li> <li>• Pathway B: Modelled Sizing Energy Demand The annual electricity use for the following demands must be calculated and demonstrated to be supplied by onsite renewable energy: • Heating, cooling, and ventilation • Cooking • White good appliances (as outlined in the Energy Efficient Appliances credit) • Lighting • Domestic Hot Water Systems (as outlined in the Hot Water Systems credit)</li> </ul> <p>The home must also meet the following requirement:</p> <ul style="list-style-type: none"> <li>• Battery Ready</li> <li>• Allowance for unregulated loads</li> </ul> <p>Other building attributes must be demonstrated to have been modelled to meet or exceed requirements outlined elsewhere in the Homes Standard. Accepted modelling systems include:</p> <ul style="list-style-type: none"> <li>• Green Star Homes Renewable Energy Calculator</li> <li>• Energy Modelling in line with the Green Star Homes Modelling guide</li> <li>• NSW Buildings and Sustainability Index (BASIX)</li> <li>• Passive House Planning Package software</li> </ul> <p>Refer to the Homes Energy Modelling Guide for further information on modelling parameters, operational profiles and other and requirements.</p> <ul style="list-style-type: none"> <li>• Pathway C: Community Renewable Energy System sizing and specification</li> <li>• The system must be designed by a Council accredited designer</li> <li>• For homes that have a PV system sized at 10 kW<sub>e</sub> or higher, the system shall be designed for 3-phase electricity installation</li> <li>• Solar panels to be installed to face between East, through North to West orientations</li> <li>• PV array panels to be installed at a minimum tilt angle</li> <li>• PV Array to be installed by a Clean Energy Council accredited installer</li> </ul>			
		30	Total	9	17	0				
Places										
		N/A	Minimum Expectation	Complies	Complies		<p><b>Changing facilities</b></p> <p>Showers: The building must provide showers based on the regular occupancy of the building. The design of the shower facilities must be appropriate to encourage their use. All showers must be at least 900 mm x 900 mm to enhance usability. Showers and bathrooms provided to meet statutory accessibility requirements do not count towards the minimum showers required to meet this Minimum Expectation. Facilities should be located within easy access of the building and close to cycle parking (where provided).</p> <p>Lockers: One locker must be provided for every eight regular building occupants or staff. The lockers must be secure and located in the changing rooms. Lockers provided within tenancies, not in changing rooms, do not count toward this credit.</p> <p><b>Accessible, Inclusive, and Located in a Safe and Protected Place</b></p> <p>Upon accessing, pedestrians and cyclists must be protected from the elements and other vehicles. Access must be safe, with consideration given to avoiding steep gradients, surface grip levels, and visibility around tight corners. Access to the facilities must be well lit between entryway to bike parking, all amenities and lift lobbies and main access points to the building. All regular building occupants or staff must have easy access to lockers, showers, and building entry. Occupants must be able to find the facilities thanks to clear signage throughout the building and access points.</p> <ul style="list-style-type: none"> <li>• Safe and Protected Access: The building has safe and protected access.</li> <li>• Electric vehicle charging: The building complies with one of the following: – The building provides provision for electric vehicle charging and the developer has established a strata fund for future installation of charging points for all units. Charging units are provided for at least 5 % of the total number of car parks, with a minimum number of at least two charging points. Or – All parking spaces are provided with a slow charger and a meter, at least one fast charger is installed and a demand management system is installed</li> </ul>	<p>As built drawings showing the number and size of showers, and of lockers</p> <p>As built drawings showing the number and size of showers, and of lockers</p> <p>Site drawings or as built drawings showing how the changing facilities are safe and protected</p> <p>Site plans showing how pedestrian access has been prioritised</p> <ul style="list-style-type: none"> <li>• As built drawings showing the number and location of bicycle parking facilities</li> <li>• Electrical drawings confirming the location of EV infrastructure.</li> <li>• For project targeting NCC 2022 compliance pathway, evidence demonstrating project is subject to NCC 2022 compliance</li> </ul>	<p>Architect</p> <p>Architect</p> <p>Architect</p> <p>Architect Elec Engg</p>	<p>Schematic Design</p> <p>Schematic Design</p> <p>Schematic Design</p> <p>Schematic Design</p>

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27	Movement and Place	Credit Achievement	3	0	3	0	<b>Bike Parking Facilities</b> The building's access must prioritise walking and cycling options. This means the building's access must be well lit, weather protected, and separated from vehicles. The building must also include access to bicycle parking facilities that are separated from the primary vehicle entrance to ensure safety.  Bicycle parking facilities must have signposted access to the changing rooms amenities as per the Minimum Expectation. The bicycle parking facilities must ensure the cycling equipment is safely secured. The amount of bicycle parking facilities is to be informed by the Sustainable Transport Plan.  In a residential building, the access points must connect to the relevant bicycle storage facilities. If these are at a unit level, the project team must show how the access won't be blocked by strata at a later date.	As built drawings showing the number and location of bicycle parking facilities	Architect	Schematic Design
							<b>Sustainable Transport</b> <b>Sustainable Transport Plan:</b> The project team must prepare and implement a Sustainable Transport Plan. The requirements or recommendations made in the Sustainable Transport Plan must then be reflected in the design of the building's facilities and ongoing operational processes. As a minimum, the Sustainable Transport Plan must include all the following: • A definition of the typical mode share of the development location and development type • A target mode share for the development that prioritises active and public transport modes, and recommendations on how to achieve them • Outline of how other modes of transport (carpooling, electric vehicles, and drop-off points) will be encouraged over private vehicle use • Identification of future projects which may change or influence mode share (such as planned, or under construction infrastructure) and the year of completion for the new infrastructure • Roles and responsibilities for implementing, monitoring, and auditing the Sustainable Transport Plan in the building's operational phase The transport plan must be prepared by a suitably qualified Transport Planner or Engineer.	Sustainable transport Plan including a site-specific transport assessment	Traffic Engineer	Design Development
							<b>Electric Vehicle Charging</b> As a minimum, where parking, the building must provide: • Ready to charge EV charging points to at least 5% of all car parking spaces. • Connections for car sharing parking spaces, regardless of whether the vehicles are electric at the time of practical application (a process made the part of a planning process made the Planning and Environment Act 1987). • Electrical infrastructure and a load management plan prepared to allow for future installation of EV charging to 25% of all car parking spaces (including the minimum 5% and car share spaces already provided). The mix of EV chargers assumed (e.g., 7kW v 22 kW) must be stated. • A dedicated site included in the electrical supply point which allows for the future provision of all necessary electrical cabling without the need for substantial builders work in connection to the electrical cabling installation.	Transport Drawings showing the provision and location of changing facilities	Traffic Engineer Building Services Engineers	Design Development
							<b>Reducing private vehicle use</b> Using the inputs from the Sustainable Transport Plan to complete the GBCA's Movement and Place calculator, the building's design and location must be shown to reduce emissions from transport, encourage public transport use, and reduce vehicle kilometres travelled compared to a reference building. The changes must be at least as follows: • Emission reduction: 40% • Active mode encouragement: 90% • Vehicle Kilometres Travelled (VKT) reduction: 20%	Movement and Place calculator	Sustainability Consultant	Design Development
							<b>Encouraging Walkability</b> <b>Roads:</b> If there are roads within the building boundary, the design must prioritise pedestrians over vehicles. Roads should be designed to be low speed (10km/hr). Pedestrians must have the right of way, and road design must encourage this.  <b>Amenity diversity:</b> Occupants should have access to a diversity of amenities across the below eight categories. There must be at least 10 amenities across five categories within 400m radius of the building, as determined by Google Maps or other mapping services. • Grocery: e.g. Convenience stores, supermarkets; • Health and wellbeing – e.g. dentist, doctor, psychologist; • Food and Beverage: e.g. cafes, restaurants, bars; • Retail: e.g. clothing, homeware, hardware, book, gift stores; • Bank Services: e.g. banks, credit unions; • Education and Childcare: e.g. Primary, secondary, tertiary or childcare facilities; • Recreation: e.g. movie theatres, fitness centres, swimming pools; • Public facilities: e.g. Libraries, local or state government service centres; and • Outdoor facilities: e.g. Playgrounds, parks	Site plans showing how pedestrian access has been prioritised  Manual calculations showing proximity to amenities.	Traffic Engineer Sustainability Consultant	Design Development
							Communal or public space must be provided at the rate of 1.75m <sup>2</sup> /dwelling and additionally, 2.5% of GFA for commercial. The communal or public space must:	Online Submission	Sustainability Consultant	Practical Completion

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28	Enjoyable Places	2	Credit Achievement	0	2	0	Publicly accessible spaces	<ul style="list-style-type: none"> <li>Accommodate community-based activities;</li> <li>Have capacity and flexibility to operate in multiple modes of usage;</li> <li>Demonstrate relevance of the space for local people (demographics, social profile, current needs);</li> <li>Demonstrate the space has been designed for enjoyment; and</li> <li>Be available to the community to use for free. It must be clearly demonstrated that the spaces are publicly accessible.</li> </ul>	Site plans showing the size of public or communal spaces		Schematic Design
								Letter from the building owner confirming the space is publicly accessible and may be used for free		Construction	
								An overview of how the public or communal spaces comply with the requirements (e.g., flexible)			Construction
								A narrative of how the spaces have been designed for enjoyment			Construction
							Activation strategy	An activation strategy must be provided to ensure placemaking continues after practical completion. The strategy must demonstrate how the future occupants and the wider community can contribute to the place activation, addressing the following: <ul style="list-style-type: none"> <li>The target of the activation activities</li> <li>How the activation will be funded and managed for the first 12 months of operation, and be sustained beyond those months</li> <li>Estimated timing of activation</li> <li>Potential suppliers, facilitators, or initiators of placemaking activation activity commencement</li> <li>How the building occupants and the wider community will be encouraged to initiate activations e.g., communication channels and support network</li> <li>Demonstrate how the strategy can be further implemented by the future tenants and occupants</li> <li>Assign roles and responsibilities for implementation of the strategy, including evaluation and monitoring</li> </ul> The strategy must be included as part of the building's handover to ensure implementation in operation.	Activation strategy		Practical Completion
29	Contribution to Place	2	Credit Achievement	2	2		Urban context analysis	The project team must provide an urban context report and public realm interface design that outlines the urban context of the development and the design responses. The report must include: <ul style="list-style-type: none"> <li>Urban context analysis: <ul style="list-style-type: none"> <li>Assessment and analysis of the local setting and wider urban context. This must include physical, social, cultural, and economic factors</li> <li>Outline any planned changes to the local area (for example if located in a growth zone) and the project's design response to those changes. This may include Local or State Government's vision for the area</li> <li>Identify any local challenges which the building can help to address</li> </ul> </li> <li>Design responses: <ul style="list-style-type: none"> <li>Demonstration of the design responses to the urban context analysis</li> <li>Demonstration that the public space is contributing positively to the proposed urban context</li> </ul> </li> </ul>	Extracts from the urban context analysis, or various relevant reports that address requirements from this credit	Architect	Schematic Design
								As built or site drawings showing how the building responds to the urban context report	Architect	Schematic Design	
								Architectural drawings showing the public realm interface design	Architect	Schematic Design	
		8	Total	2	7	1					
People											
		N/A	Minimum Expectation	Complies	Complies		On-site Facilities, Policies, and Training	The head contractor must ensure the following is provided or available on-site: <ul style="list-style-type: none"> <li>Separate gender inclusive bathroom facilities and changing amenities with a high degree of privacy</li> <li>Diverse gender-specific fit-for-purpose personal protective equipment (PPE) for diverse body sizes and types</li> </ul> The head contractor must: <ul style="list-style-type: none"> <li>Implement policies to address issues of discrimination, racism, and bullying on-site</li> <li>Introduce on-site redress procedures for any relevant breaches and corrective measures to be put in place should any incident be identified</li> <li>Empower a diverse lead team to manage these policies on-site</li> <li>Provide training to all contractors and subcontractors on these policies (as per below) <ul style="list-style-type: none"> <li>Training must be provided to 95% of all contractors and subcontractors present on site for at least three days for: <ul style="list-style-type: none"> <li>Information on drug and alcohol awareness and mental health</li> <li>Information on policies implemented on discrimination, racism, bullying on site, and safe ways</li> </ul> </li> </ul> </li> </ul>	Description of the types of PPE available to construction workers	Head Contractor	Pre-construction
								Evidence of purchase of appropriate PPE	Head Contractor	Pre-construction	
								Extracts from relevant policies that address discriminating, racism, and bullying	Head Contractor	Pre-construction	
								Drawings of gender inclusive facilities	Head Contractor	Pre-construction	
								Evidence of lead team diversity	Head Contractor	Pre-construction	
	Needs Analysis report outlining engagement process and outcomes for training	Head Contractor	Pre-construction								
							Needs analysis	The responsible party should carry out a needs analysis of potential site workers and sub-contractors at tender (or similar early stage) to determine appropriate actions. The policies and programs should be relevant to all construction workers on site for the full duration of construction.			

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31	Inclusive Construction Practices	1	Credit Achievement	1	1	0	Physical and mental health impacts	The head contractor must show that they have introduced programs and solutions to address at least five of the following: <ul style="list-style-type: none"> <li>• Suicide prevention</li> <li>• Healthy eating and active living</li> <li>• Reduce harmful alcohol and tobacco consumption and avoid drug use</li> <li>• Increased social cohesion, community, and cultural participation</li> <li>• Understanding depression</li> <li>• Preventing violence and injury</li> <li>• Decreased psychological stress</li> <li>• Finding fulfilment at work or mindful meditation</li> <li>• Other issues identified in the Needs Analysis</li> </ul> A mix of programs is acceptable. The programs must cover at least 80% of the workforce that have attended the site for more than three days from commencement on site to practical completion. The programs or solutions can be implemented directly by the head contractor or through partnerships with mental and physical health organisations.	Extracts of evidence detailing the programs and policies implemented to promote health and wellbeing on site	Head Contractor	Pre-construction
							Evaluating the program's effectiveness	The project must provide an evaluation report to the client and sub-contractors with the following information: <ul style="list-style-type: none"> <li>• Information on the programs or initiatives that were delivered, including information on dates, attendance, and available languages</li> <li>• A review on whether the programs delivered the intended outcomes including recommendations for improving future delivery of these programs.</li> </ul>	Evidence detailing the process to manage training, and track workers trained. Examples of evidence include extracts from the training policy, a report from a third-party provider, or similar	Head Contractor	Pre-construction
									Extracts of training such as screenshots, presentation, or similar, showing the information provided as part of training.	Head Contractor	Pre-construction
									Evaluation report of the effectiveness of the training	Head Contractor	Practical Completion
32	Indigenous Inclusion	2	Credit Achievement	2	2		Indigenous Inclusion - pathway	There are two pathways to meeting this credit: <ul style="list-style-type: none"> <li>• The building's design and construction played a central role in the delivery of the targets in the project owner's organisational Reconciliation Action Plan (RAP); or</li> <li>• <b>The building's design process followed Indigenous Design and Planning principles.</b></li> </ul> Both require visible and inclusive participation of Aboriginal and Torres Strait Islander throughout the project's life cycle.	Online Submission	Sustainability Consultant	Practical Completion
							Reconciliation Action Plan	To meet this Credit Achievement, the project team must demonstrate that: <ul style="list-style-type: none"> <li>• A key member of the Project Team is part of the organisational RAP Working Group;</li> <li>• At least 90% of the RAP targets have been met on the project; and</li> <li>• All implemented actions related to the RAP are publicly reported on the Project's website.</li> </ul> Any design element must be informed by consultation undertaken with the local Aboriginal and Torres Strait Islander community or through nominated representatives. Where an organisational RAP has already been developed and endorsed, the project is required to adapt this to the project under certification. The project must detail specific engagement, implementation and actions that have positively influenced the outcomes of the project.			
							Inclusion of Indigenous design	The project team must demonstrate that the Australian Indigenous Design Charter guiding principles are incorporated in the design of the building including: <ul style="list-style-type: none"> <li>• How local Aboriginal and Torres Strait Islander communities have been engaged throughout the design development</li> <li>• How the project has been designed to acknowledge and recognise the Indigenous culture of the site</li> <li>• How information on the reconciliation and cultural values of the project will be made available to the public, visitors, and building tenants in the operational phase of the project's life.</li> </ul> At a minimum, the following four principles from the Australian Indigenous Design Charter are to be addressed: <ul style="list-style-type: none"> <li>• <b>Indigenous Led:</b> Ensure Aboriginal and Torres Strait Islander representation in the creation of the</li> </ul>	Extract from indigenous engagement strategy		Practical Completion
									Evidence of Aboriginal and Torres Strait Islander engagement from concept design throughout the project's life cycle		Practical Completion
									As built drawings or photographic evidence of incorporated designs		Practical Completion
		Comparison against the four principles from the Australian Indigenous Design Charter		Practical Completion							
		Evidence of information being made available to public (e.g., website)		Practical Completion							

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33	Procurement & Workforce Inclusion	2	Credit Achievement	2	0	0	Social Procurement Strategy - 2%	<p>Through the implementation of a social procurement strategy, at least 2% of the building's total contract value has been directed to generate employment opportunities for disadvantaged and under-represented groups.</p> <p>The project team must develop and implement a social procurement strategy or plan (this can be part of an overall project procurement plan/strategy). The project team must also include targets and annual reporting requirements in the strategy.</p> <p><b>Social procurement strategy</b> The plan must include:</p> <ul style="list-style-type: none"> <li>• A description of the project's social procurement and workforce objectives, needs, and targets;</li> <li>• A demographic study of the local region to inform identification of target workforce groups and their skills;</li> <li>• Descriptions of the roles and responsibilities in the implementation and monitoring of social procurement and workforce targets and contracts;</li> <li>• Data collection and reporting templates / tools, including how data from Tier 2 and Tier 3 contractors will be collected;</li> <li>• Monitoring and reporting requirements; and</li> <li>• Reporting requirements for the project director.</li> </ul> <p>Projects must report the following at the time of practical completion:</p> <ul style="list-style-type: none"> <li>• Dollar spent and as a proportion of building contract value;</li> <li>• Supplier(s) engaged;</li> <li>• Where workforce targets are in place, the number of jobs created per target group expressed as Full Time Equivalent; and</li> <li>• Jobs supported.</li> </ul> <p><b>Employment opportunities strategies</b> Generation of employment opportunities for disadvantaged and under-represented groups can be achieved:</p> <ul style="list-style-type: none"> <li>• Directly, through workforce targets; or</li> <li>• Indirectly, through social procurement.</li> </ul> <p>A combination of these strategies can be used to achieve the credit, as long as the total dollar spend on the above activities is equal to or greater than Criteria percentage of the building's total contract value.</p> <p>The building's design and construction can contribute to generating employment opportunities for disadvantaged and under-represented groups through the procurement of goods, services and construction by:</p> <ul style="list-style-type: none"> <li>• Aboriginal and/or Torres Strait Islander businesses;</li> <li>• Social enterprises; and/ or,</li> <li>• Disability enterprises.</li> </ul> <p>Enterprises must be independently certified by third party organisations such as Supply</p>			
		9	Total	5	3	0		<p><b>The document must not be used for any purpose which may breach any copyright</b></p>			
Nature											
							Site Ecological Value	<p>This requirement is met where:</p> <ul style="list-style-type: none"> <li>• At the date of purchase or option contract, land clearing does not occur on the site as a result of the building, infrastructure, or construction works on the following: <ul style="list-style-type: none"> <li>– Old-growth forest</li> <li>– Prime agricultural land</li> <li>– Any wetland listed as being of 'High National Importance'</li> <li>– Aspects considered 'Matters of National Environmental Significance' listed under the Environmental Protection and Biodiversity Conservation Act (1999) regardless of whether they have been referred to the Federal Environmental Minister for consideration and assessed as a 'controlled action' or not</li> </ul> </li> <li>• If the project site is adjacent, within 100 meters, or contains the above and these are being protected, the construction and future operations of the site takes measures to reduce their impact to the above as follows: <ul style="list-style-type: none"> <li>– Both the Waterway Protection Credit Achievement and the Credit Achievement for this credit (Impacts to Nature) is met</li> <li>– The light pollution impacts are managed</li> <li>– Where the site is next to a wetland (as above), by also putting in place Wetland Protection Measures</li> </ul> </li> </ul>	Zoning Plans	Client	Schematic Design
							Managing Light Pollution Impacts	<p><b>Light pollution to neighbouring bodies:</b> The project team must demonstrate that all outdoor lighting on the project complies with AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting.</p> <p>The conditions apply to all boundaries, apart from boundaries with roads. The boundary shall be taken as the site boundary, with no setback and no consideration of the location of adjacent buildings (i.e., worst-case scenario).</p> <p>The following values from Table 2.1 of AS/NZS 4282:2019 must be applied:</p> <ul style="list-style-type: none"> <li>• For Class 2 buildings (residential), the compliance is for columns 4 and 5 as per Table 2.1 of AS/NZS 4282:2019</li> <li>• For Class 3 to 9 buildings (non-residential), the compliance is as per column 3 as per Table 2.1 of AS/NZS 4282:2019</li> </ul> <p>The system must comply with both pre- and post-curfew requirements.</p>	As Built drawings indicating the location of all external luminaires and showing the aiming point and mounting orientation of all external luminaires	Architect Building Services Engineers	Design Development
		N/A	Minimum Expectation	Complies	Complies						

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35	Impacts to Nature			0	2	0	<p><b>Light pollution to night sky:</b> It must be demonstrated that one of the following specified reductions in light pollution has been achieved by the project:</p> <ul style="list-style-type: none"> <li>Control of upward light output ratio (ULOR)</li> <li>Control of direct illuminance</li> </ul> <p>This covers all external lighting of a project. In addition to other types of external lighting, for the purposes of this credit, luminaires inside glazed atria and those on the uppermost (uncovered) deck of an outdoor car park are considered external.</p> <p><b>Control of Upward Light Output Ratio (ULOR)</b> For this option, the project team must demonstrate that no external luminaire on the project has a ULOR that exceeds 5%, relative to its actual mounted orientation. Project teams must demonstrate that the ULOR provided or calculated in the documentation, is relevant to the as-installed orientation of the luminaire.</p>	<p>Excerpt from lighting control system, or similar, demonstrating automatic deactivation of lights, based on external lux levels, where deactivation is required to achieve compliance</p>	<p>Building Services Engineers</p>	<p>Design Development</p>
							<p><b>Wetland Management Plan</b> The site-specific Wetland Management Plan must be prepared by a qualified Ecologist or other qualified professional and include requirements for ongoing quarterly monitoring, annual reporting, and management of the wetland ecosystem for a minimum of five years. The plan must be exhibited to the public on the applicant's website or the local council's offices or library for a minimum of 24</p>	<p>Luminaire schedule for all external lighting, nominating the type, lighting distribution and quantity of each luminaire and including the relevant photometric data such as ULOR</p>	<p>Building Services Engineers</p>	<p>Design Development</p>
							<p><b>Context report:</b> The project team must demonstrate how they have attempted to understand their site's historical and current ecological context by documenting the site's current ecological values by type and biomass. This includes terrestrial and aquatic ecological values, geologic features, and soils (including interaction with living things). When determining biodiversity value, the project must reference local, regional, state, and national priorities and strategies. The project should use this investigation as a foundation to appropriately identify if there is potential for any future ecological value to be incorporated on site.</p> <p><b>Protecting ecology:</b> Based on the understanding of the site, the project team must show how ecological values will be protected including:</p> <ul style="list-style-type: none"> <li>The proportion of existing vegetated area being retained and the biodiversity value of this area, including identifying species names.</li> <li>Identifying local and regional threats and mitigation requirements.</li> <li>Using active management strategies to be employed to protect the integrity of ecological values throughout the project planning, construction, and occupancy</li> <li>Determining and documenting local risks and opportunities to enhance the site.</li> <li>Detailing consultation outcomes with local stakeholders including Aboriginal or Torres Strait Islander groups and environmental groups.</li> </ul>	<p>Calculation Plots for all external lighting, showing that all grid points on the calculation plane return compliant Lux values</p>	<p>Building Services Engineers</p>	<p>Design Development</p>
							<p>Wetland Management Plan</p>	<p>Ecologist</p>	<p>Schematic Design</p>	
		2	Credit Achievement	0	2	0	<p><b>Retaining High Biodiversity Values</b> Where a site has been designated as a high biodiversity value by an assessment undertaken by an expert, the project team must retain at least 50% of this area contiguously. The project team must then provide a narrative as to how the following impacts to nature and the community have been mitigated:</p> <ul style="list-style-type: none"> <li>Light and noise pollution (this is met if required for the Minimum Expectation)</li> <li>Habitat disturbance and connectivity (deemed met if Biodiversity Enhancement and Nature Connectivity credits are achieved)</li> <li>On-site and downstream water quality (Deemed met if Waterway Protection credit is achieved)</li> <li>Migratory paths of insects, birds, or other species</li> <li>Two local issues appropriate to the project site (e.g., pest management and groundwater)</li> </ul> <p>Consideration must be given to these impacts during demolition, siteworks, construction, or future occupation. Where no existing biodiversity is identified through the process outlined above, the project team is not required to provide a narrative to describe how the listed impacts to nature and the community have been mitigated, but instead how the project will add biodiversity value to the site.</p>	<p>Ecological assessment report</p>	<p>Ecologist</p>	<p>Design Development</p>
							<p><b>Landscape Area</b> At a minimum, external landscape in the building, whether horizontal or vertical must be provided at a ratio of either 15% of the site area or at a ratio of 1:500 of the GFA, whichever is larger. Vertical or horizontal landscapes are acceptable.</p>	<p>Ecological assessment report Evidence that 50% of the site has been retained such as narrative from ecologist and as built drawings</p>	<p>Ecologist</p>	<p>Design Development</p>
							<p><b>Diversity of species</b> Landscape must be shown to be diverse and include multiple species/genus/etc. Greater than 60% of plants must be indigenous and the site must include at least one significant (nesting) tree or equivalent habitat provision per 500m2 of landscaped area. No invasive species are allowed, as per the Australian Weeds Strategy 2017 to 2027. There are two pathways to demonstrate diversity in plant selection and climate resilience.</p> <p><b>Prescriptive pathway:</b> The landscaping must not exceed the following percentages per type:</p> <ul style="list-style-type: none"> <li>10% of plants from one species</li> <li>20% of plants from one genus</li> <li>30% of plants from one family</li> </ul>	<p>Site Plans marked up with landscaping</p>	<p>Landscape Architect</p>	<p>Design Development</p>
							<p><b>Performance pathway:</b> An ecologist must assess and verify that the choice of landscaping and biodiversity is diverse and resilient to climate change impacts, thereby increasing the longevity of the landscape. An Ecologist must provide this narrative.</p>	<p>Schedules of plant species numbers and diversity</p>	<p>Landscape Architect</p>	<p>Design Development</p>
								<p>Aerial Site Photographs marked up with landscaping</p>	<p>Landscape Architect</p>	<p>Design Development</p>
								<p>Schedules of plant species numbers and diversity</p>	<p>Landscape Architect</p>	<p>Design Development</p>
								<p>Evidence of plant diversity (species, genus, and family)</p>	<p>Landscape Architect</p>	<p>Design Development</p>
36	Biodiversity Enhancement	2	Credit Achievement	0	2	0		<p>Ecologist report on: – Landscaping diversity and resiliency – No invasive species – How the site supports vulnerable ecosystems</p>	<p>Ecologist</p>	<p>Design Development</p>

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							<b>Biodiversity Management Plan</b>	A suitably qualified professional, such as a qualified ecologist or landscape architect, must prepare a Biodiversity Management Plan. The plan must outline key actions that need to be undertaken in order to maintain the ecological integrity of biodiversity on the site, whether this is existing or that created as part of the development. The following key requirements must be outlined in the biodiversity management plan: <ul style="list-style-type: none"> <li>• The vision and objectives for the site's biodiversity values</li> <li>• Roles and responsibilities in the implementation of the Plan</li> <li>• A description of the biodiversity baseline on and surrounding the site</li> <li>• A description of the proposed biodiversity enhancements and how they connect to the existing baseline on and surrounding the site</li> <li>• How success and implementation will be measured</li> <li>• How impacts or threats to biodiversity on site post practical completion will be mitigated</li> <li>• Provision for update of the Biodiversity Management Plan where necessary</li> </ul>	Biodiversity management plan	Ecologist	Design Development
37	Nature Connectivity	2	Credit Achievement	0	2	0	<b>Nature Connectivity</b>	The site must be built to encourage species connectivity through the site, and to adjacent sites. If the project sits within a blue or green grid strategy it must contribute to the goals of the strategy. The site may include any of the following strategies: <ul style="list-style-type: none"> <li>• Landscaping: Where connectivity is being achieved through landscaping, this must be contiguous with existing, restored and new habitats. As a minimum requirement for habitat connectedness, the conservation area must make up at least 25% of the total external area within the building's site boundary. To be eligible, this must be at least 182m<sup>2</sup>; or</li> <li>• Infrastructure: Design features such as a canopy bridge, wildlife tunnels, green roofs, amphibian tunnels and green infrastructure are used to connect nature on site to adjacent natural areas, which are either existing, restored or new.</li> </ul> For both pathways, the project is to provide a narrative on how the pathway would support the targeted wildlife species. In addition to the above, if the project sits within a blue or green grid strategy, the project team must demonstrate how its design and landscaping contribute to the goals of the strategy.			Schematic Design
38	Nature Stewardship	2	Credit Achievement	0	0	2	<b>Overview</b>	The building owner, as part of the project's development, undertakes activities that protects or restores biodiversity on the development's boundary.			Practical Completion
							<b>Area of restoration or protection</b>	The area of restoration or protection must be at least 10% of the GFA of the development, or site area, whichever is greater.			Practical Completion
							<b>Location of restoration or protection</b>	Land for restoration must be in Australia and restored to equivalent ecological value of the site before any development occurred. The location of the land designated for the offsite restoration must not be in the development boundary. A qualified Ecologist must confirm that the ecological value is equivalent. There are situations where land restoration may occur in a site where the building is located, but not within the development boundary (e.g. a university campus). Project teams are encouraged to contact GBCA to determine whether this site complies. Project teams must ensure that the land being claimed for restoration and protection activities is not being double counted for multiple buildings or other activities. The Certified Assessor reserves the right to query for additional information during assessment.			Practical Completion
							<b>Activities to protect or restore</b>	Achieving the credit can be done by either: <ul style="list-style-type: none"> <li>• The project owner protecting or restoring an area offsite themselves; or</li> <li>• The project owner supports an organisation that restores an area on their behalf.</li> </ul> In all cases, for the activities above, the project team must show how the action is additional. That is, the action goes beyond any legislated requirements and how it is resulting in an outcome that wouldn't have happened otherwise. There may be other pathways that can be used by building owners to demonstrate that they are restoring or protecting an area outside their development boundary. Project teams are encouraged to contact GBCA to explore these opportunities.			Practical Completion
							<b>Legislated requirements</b>	Where the project is required to purchase biodiversity offsets, invest in land restoration, restore land, or similar, as part of an EPBC action or development approval, or other legislated requirements, these actions cannot be used to demonstrate compliance with this credit.			Practical Completion
		14	<b>Total</b>	0	6	4					
<b>Leadership</b>											
41	Leadership Challenges	0	Credit Achievement	0	1		<b>Climate Positive Pathway</b>	This credit is part of the Net Zero Carbon in Operations path in Green Star Buildings (see page 19 in the Introduction). When the pathway achieved, an additional Leadership Challenge point is awarded to the building for a total of 15 points for this path.		Sustainability Consultant	Design Development
		10	<b>Total</b>	0	1	0					

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For additional information, questions unturned, collaboration opportunities and project enquiries please get in touch.

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